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TABLE OF CONTENTS

The Arboretum in the Winter	B. O. Mulligan	1
Diseases of Coniferous Trees	Charles Gardner Shaw	3
Pacific Madrone	C. Frank Brockman	7
Arboretum Spotlight		8
Flowering Cherries in England	Collingwood Ingram	9
Flowering Cherries	John C. Wister	11
Flowering Cherries	W. H. Warren	13
The Whitcomb Cherry	David Whitcomb	14
Cherries in the Arboretum	Robert J. Hansen	15
Oriental Flowering Cherries in the Seattle Park System	A. W. Gallaher	19
The Flowering Cherries of Hanleylands	Mrs. E. B. Hanley	21
Notes and Comment		22
Book Reviews		24
Arboretum Notebook		26
Sources for Flowering Cherries, 1953		36

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The Arboretum Bulletin

VOLUME XVI

SPRING, 1953

NUMBER 1

The Arboretum in the Winter

B. O. MULLIGAN

UP to the time of writing (mid-February) the word "winter" has scarcely been applicable to the weather which has visited Seattle during the past three months. In the last ten days of November we recorded frost on most nights, down to 22 and 24 degrees on the 29th and 30th, but in December on only five nights (lowest, 26 and 24 degrees on the 24th and 25th), and in January on one, as compared with 13 nights of January, 1952.

The greatest change from normal, however, has been in the rainfall—very low in October and November, totaling only 2.25 inches for those months instead of a normal 2.84 and 5.03 inches respectively, rising to 5.19 inches in December (normal 5.60 inches) and 11.78 inches in January (normal 4.93 inches), accompanied by noticeably higher temperatures than usual in the last two months. In fact, both rainfall and average temperature (47.2 degrees) set records for January in Seattle.

Such conditions, of course, have produced a very short resting period for many of our plants, followed by early commencement of growth, so that by the beginning of February no less than twenty different species, mostly shrubs, were in bloom, especially in the Winter Garden. Prominent among these were the witch hazels (*Hamamelis*), *Viburnum fragrans*, wintersweet (*Chimonanthus*), Corsican Hellebore, and several forms of *Erica carnea* beside the path, while at the north end of

Azalea Way the large planting of *Rhododendron mucronulatum* was conspicuous with its mass of delicate lilac to purple flowers, quite dimming those of the neighboring tree of the winter cherry. In the camellia collection the form of *C. saluenensis* named "Apple Blossom" has been a beautiful sight, with its large, fragrant, single white flowers touched with pink in the bud stage. However, the double white *C. japonica* Nobilissima was in bloom even earlier, by the first week of January.

Two improvements achieved during this wet period have been (a) the removal of former unsuitable and untidy plantings, with accompanying weeds, along the Broadmoor fence by the south end of the Upper Road, and forming instead a new border, already partially planted. At the same time the slopes of the rock garden opposite were tidied up and several small extensions made to the existing planted areas for later use.

(b) For several years the southern portion of the slope above the pond where *Rhododendron* Glen meets Azalea Way has been a difficult problem, poorly drained and remaining wet even in summer, growing brambles, horse-tail, seedling alders and poplars, impossible to mow because of the heathers planted some twelve years ago. Now the weed growth has been cleared away, the heathers brought to light and trimmed, and we can have some hopes of keeping it in better condition in the future. Many stumps left in the grass along

Azalea Way and elsewhere have also been removed by the tractor. Further removal of undesirable young native trees is now in progress on the steep bank on the east side of Azalea Way, the last remaining section there to be cleared.

A large quantity of leaves given us by the city engineer's department has gradually been hauled from the stockpile near the Madison Street playfield and spread over many cultivated beds; in the Winkenwerder memorial area on our crab apples, roses and Japanese quinces; on the camellias and hollies by the upper road, most of the rhododendrons and some of the azaleas, the beds of brooms (*Cytisus*) just north of Rhododendron Glen, around the peonies, etc. With fertilizer applications in March such material in the course of a year becomes excellent humus for the benefit of all these plants.

The weeping cherries along Azalea Way have again been thoroughly pruned, to encourage upward growth and keep the lower branches off the ground. Additional places for ground cover plants, especially *Mahonia nervosa*, have been prepared on the north bank of Woodland Garden, and small extensions have been made to beds in the Winter Garden, in Loderi Valley, and beside the groups of Dexter rhododendrons and kalmias on the bank north of the Glen.

Planting

In the new border by the Upper Road, already mentioned, several species of true cypress have been planted, together with a sugar maple, and on the fence *Pyracantha angustifolia*, but further plantings here of evergreens to form a screen will be made. On the opposite slopes above the rock garden have been placed two red maples, a specimen of the elegant Mexican *Pinus patula* and one of the California Digger pine (*P. Sabiniana*). Examples of several Chinese maples have been added to the collection in this area and across the Boulevard beside the large parking space, all raised here from seeds.

Most of the west bank of Azalea Way below Woodland Garden has been replanted with larger azaleas, after adding fresh soil to improve the existing clay. Additions have been

made to the growing collection of *Vaccinium* species located behind the long bed of rhododendrons west of the magnolias, and to the *Hamamelis* east of the Upper Road, while the Winter Garden has received several newcomers—the white form of *Daphne Mezereum*, *Garrya elliptica* from California, a pair of deciduous viburnums, and another group of the deliciously fragrant wintersweet, product of seeds received from Italy some four years ago.

Acquisitions

(a) *Plants*. Among purchased items can be recorded plants of the newer English *Camellia* hybrid "Mary Christian", three magnolias, two viburnums, *Loropetalum chinense*, an evergreen relative of the witch hazels, *Ceanothus impressus*, the upright form of the European hornbeam (*Carpinus Betulus*) and an attractive narrow columnar gray variant of the Lawson cypress.

As gifts we have received and welcomed young plants of seven kinds of hollies from the Kingsville Nursery, Maryland; six modern English rhododendron hybrids, from Dr. W. B. Hutchinson, Seattle; fourteen of the more recent forms of *Camellia japonica*, from Mr. J. Buzard, Hunts Point, Washington; scions of two Chinese cherries from Huntington Botanic Garden, California; and of two Japanese varieties from Mr. John Wister, Swarthmore, Pennsylvania. Cuttings of six other hollies were sent at our request from the Morris Arboretum, Philadelphia.

(b) *Seeds*. At this season of the year these come in almost daily from a wide variety of countries and climates. Mr. Lester Brandt of Tacoma has again given us a selection of his latest rhododendron hybrids. Dr. C. L. Hitchcock of the University's botany department passed on to us eleven kinds of nativeshrubs from Northern Japan, while Dr. F. Meyer of Missouri Botanical Garden was equally generous with seeds from Turkey, which included the eastern *Liquidambar*, *Juniperus excelsa*, and *Rhododendron ponticum* from an altitude of 5,000 feet. Mr. Carl English, Jr., of Seattle, supplied eleven species of trees or shrubs, including three oaks, collected last

(Continued on Page 28)

Diseases of Coniferous Trees

CHARLES GARDNER SHAW *

THE extensive coniferous forests of the Northwest play a significant role in the economy of this region. They are not only a source of lumber but also serve as watersheds and rangeland. For all citizens our National Forests constitute one of the major scenic and recreational attractions of the area.

The widespread publicity given forest fires in the press and the warning signs, "Be Careful with Fire" and "No Smoking while Traveling," which are posted along highways and forest roads, impress upon everyone the damage caused by fire. Losses caused by diseases, insects, drought, and wind usually escape public notice since they occur slowly over periods of months or years, rather than suddenly and spectacularly as in the case of fire; nevertheless, the U. S. Forest Service estimates that the losses from these causes exceed those caused by fire.

Every species of our coniferous trees is subject to attack by a number of different and important diseases. Since it is impossible to mention all of these, this article discusses four representative ones: (1) white pine blister rust, a classical example of the damage that can be caused by an introduced pathogen; (2) pole blight of western white pine, a recently discovered disease about which very little is yet known; (3) Berckman's blight of *Arborvitae*, a disease of ornamental conifers; (4) winter injury, an example of a noninfectious disease which causes severe damage to both forest and ornamental conifers.

White Pine Blister Rust

White pine blister rust, caused by *Cronartium ribicola*, was first introduced into the eastern United States from Europe about the turn of the century, on nursery stock of our own eastern white pine. In 1921 it was found at Vancouver, British Columbia, apparently having been introduced again in 1910 on a shipment of eastern white pine transplants from France. Since then it has spread through-

out the range of western white pine, from British Columbia to northern California and eastward into western Montana.

This rust has a complicated life cycle involving several spore forms on two entirely unrelated groups of hosts. In the fall of the year basidiospores are produced by the parasite on certain species of currant or gooseberry (*Ribes*) and are later blown about by the wind. Some of these basidiospores come to rest on the needles of white pine. There they germinate and send infection hyphae into the leaf tissue. Each infection continues to spread, the mycelium of the rust fungus penetrating through the needle and advancing into the twig. Usually the second year after infection of the white pine, the infected twigs begin to swell and become spindle-shaped. Between mid-April and early June of the third or fourth year after infection, whitish blisters appear on these spindle-shaped swellings. These blisters, the aecia of the rust, burst open and release a second type of spore, the yellowish aeciospores. Aeciospores, although produced on white pine, cannot reinfect that host. They are windblown and some come to rest on the leaves of *Ribes*, where they can cause infections. Within one to three weeks after infection of the *Ribes* leaves by aeciospores, a third type of spore is produced. These spores are summer repeating spores and are known technically as urediospores. They do not infect pine, but cause new or build-up infections on the *Ribes*. Each infection on the *Ribes* leaves continues to produce additional urediospores throughout the summer; these urediospores in turn cause additional infections on the *Ribes*, and thus the infections on this host become innumerable. Late in the summer a fourth kind of spore is produced in large numbers by each infection on the *Ribes* leaves. These spores (called teliospores) do not directly cause infection of either *Ribes* or of white pine; instead they germinate on the under-surface of the *Ribes* leaf and give rise to the basidiospores. These are the spores with which we began the life cycle. They cannot infect cur-

*Dr. Charles Gardner Shaw is Plant Pathologist at the Agricultural Experiment Station, State College of Washington, Pullman, Washington.

rants and gooseberries; they can only infect the white pines, to which they are blown by the wind, thus completing the life cycle. The two- and three-needle pines are not susceptible to white pine blister rust, although other rusts do attack them.

The cankers produced on pine continue to enlarge and produce new crops of aeciospores each year. As soon as the mycelium has completely encircled the twig or branch and killed the cambium, the portion of the branch distal to the canker dies and the needles on this portion turn brown. The dead branches then stand out in sharp contrast to the green foliage of healthy branches; this condition is referred to as "flagging." This is a very common symptom of white pine blister rust. With the death of the terminal portion of the branch, the upward expansion of the canker ceases; however, it continues to grow downward slowly, and eventually reaches the large limbs or the trunk.

Cankers on the trunk destroy the value of the tree for lumber and eventually kill the tree. In mature stands the cankers, starting on the small twigs, rarely spread to the part of the bole that is commercially valuable. However, heavily infected mature trees sometimes die before the disease reaches the main stem as a result of most of the needle-bearing branches being killed by innumerable infections. The disease is most severe on seedlings and saplings which represent our future supply of timber. On young trees any infection may spread in a few years to the main stem and kill or completely deform the tree. As an example of the destructiveness of white pine blister rust, one stand of western white pine reproduction averaging over twenty feet in height had over ninety per cent of the trees killed eleven years after the rust first entered the locality. After sixteen years practically one hundred per cent of the trees were dead.

The only feasible means of controlling white pine blister rust is to eliminate the currants and gooseberries that serve as the alternate hosts for the fungus. The basidiospores produced on the *Ribes* leaves in the fall quickly lose their viability when exposed to direct sunlight or to dry air. If all currants and

gooseberries are destroyed within the pine stand and for a distance of approximately one mile in all directions from the stand, the further spread of white pine blister rust will be prevented. This distance may be reduced to 1500 feet around nurseries and to 1,000 feet for other stands if neither European black currant nor the western black currant occur in the area.

Elimination of *Ribes* does not eliminate cankers already present on previously infected pines. Such cankers will continue to produce aeciospores, but since these cannot reinfect pine, no new infections will appear.

For many years the federal government has maintained large *Ribes* eradication crews in the white pine forests of the Pacific Northwest. Bulldozers, hand grubbing, and various chemicals have all been used in accomplishing *Ribes* eradication. Chemicals used in the past include Diesel oil, sodium chlorate or common salt mixed with borax, ammonium thiocyanate, and ammonium sulfamate. More recently 2,4-D and 2,4,5-T have been used almost exclusively in the eradication program. Two or three years after the initial working of an area it must be rechecked, since seedlings and some of the larger bushes will have been missed.

Ribes eradication is economically feasible only if the cost of the removal results in a comparable or greater increase in the value of the timber produced. In areas where white pine occurs in relatively pure stands, there can be no question of the value of the program. However, on poorer sites for western white pine, where this species grows intermingled with other conifers, the cost of *Ribes* eradication remains the same (or may even be higher) but must be borne by only a portion of the total stand, namely the white pine portion. Thus in many areas it is not economically practical to undertake *Ribes* eradication.

After *Ribes* eradication has been accomplished in an area, valuable ornamental white pines infected with blister rust can be saved, if treated before girdling of the main stem occurs. Infected twigs and branches should be cut off at least three or four inches below the lowest indication of swelling. In removing cankers on the main stem, all infected bark

plus a strip of surrounding apparently healthy bark two inches wide on the sides and four inches wide at the tip and bottom should be carefully removed. Such ornamental trees should be rechecked every third year so that lesions previously missed may be eliminated.

Pole Blight

White pine blister rust has been known for almost 100 years. The life cycle of the causal organism has been thoroughly investigated and practical control measures have been developed. Pole blight of western white pine, on the other hand, was first observed in the Coeur d'Alene and Kaniksu National Forests only about twenty-five years ago. The disease is now known to occur in northeastern Washington, northern Idaho, northwestern Montana, and in British Columbia. Until 1951 it had not been reported west of the Cascades, but is now known to occur on Vancouver Island.

Pole blight is so named because it is generally found in pole-sized trees between thirty-five and one hundred years of age. In the early stages the most prominent symptom of pole blight is a yellowing of the foliage of an isolated tree or small group of trees in the stand. Closer examination reveals that the foliage is thin in the upper crown and that the terminal and lateral shoots, as well as the needles they bear, are shortened. In the intermediate stage the yellowing of the foliage and the dwarfing of the terminals become more pronounced, and a resinosis originating from long flat faces on the trunk, under which the cambium is dead, may be present. In the final stages the foliage is extremely thin, that remaining being yellowish to brownish and obviously dying. The dwarfing of the terminal and lateral shoots is very pronounced, and the flat faces in the bark are large and numerous. Resinosis usually is extremely heavy.

Development of the disease is slow. As much as eight or ten years may elapse between the time that the presence of pole blight is suspected in a given tree and the full development of the symptoms.

The symptomology, geographical distribution, the rate of spread, the possible causes and control of pole blight are being intensively

investigated by research workers in a number of agencies. These include: The University of Idaho, the U. S. Department of Agriculture (Division of Forest Pathology, Division of Forest Insect Investigation, and the U. S. Forest Service), and the Dominion Laboratory of Forest Biology of Canada.

Pole-age stands cover about 750,000 acres in the Inland Empire, or about one-fifth of the white pine land in the area. Aerial and ground surveys indicate that approximately eight per cent of these pole-age stands are now affected. These surveys indicate that the disease is spreading both within stands where a few years ago only a few trees were affected and also into pole-age stands which were not formerly affected. Furthermore, it seems likely that the younger age classes, as they approach the pole-age class, will also be subject to attack. Consequently, if pole blight continues to spread, it seriously threatens the future of white pine in this area. Simultaneously this new disease, if unchecked, threatens to nullify the *Ribes* eradication program for blister rust control, in which more than \$17,000,000 has been invested since 1922.

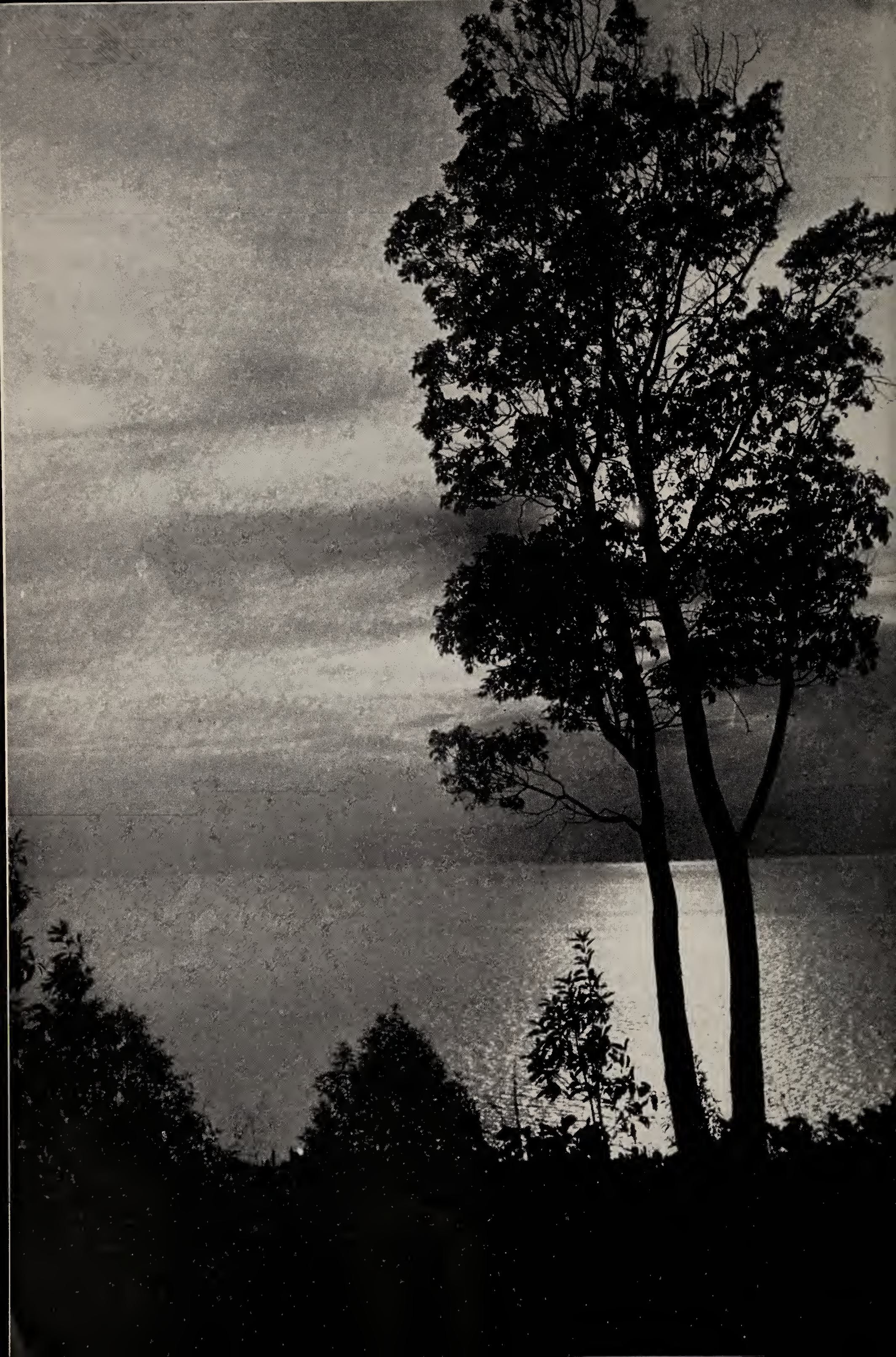
Blight of Arborvitae

A disease known as Berckman's blight of Oriental Arborvitae often causes serious damage in the Pacific Northwest. In the coastal regions some damage occurs almost every year. Normally the disease is of minor importance east of the Cascades, but in years with continued cool and wet weather into late June or July serious damage has occurred there also.

The disease appears as a blighting of the small branches which at first become light brown and then darker brown. The symptoms are at first barely noticeable, but as the disease develops, the plants become very unsightly. Continued development of the disease may so weaken the plant that it dies. The blight is caused by a fungus known as *Coryneum berckmanii*. Careful examination of the dark brown shoots will show the small, black fruiting bodies of the causal agent.

To control this blight the trees should be sprayed with either cuprous oxide (one ounce

(Continued on Page 34)



Pacific Madrone

Arbutus Menziesii Pursh

C. FRANK BROCKMAN*

A BEAUTIFUL tree which should be well known to residents of the Puget Sound area, the Pacific madrone, is known by a number of common names. In addition to the one just mentioned it is often referred to simply as "madrone" or most commonly "madrona," while our neighbors and friends in Canada use the generic term "arbutus" as the common name. The specific name—*Menziesii*—was applied in honor of Archibald Menzies who, as naturalist with the Vancouver Expedition to the Pacific Coast of North America in 1790-95, was the first to observe and collect specimens of this tree.

One characteristic of the madrona which seems to impress many people is its "untidiness." Seldom is this tree discussed without mention of that quality. And it does always seem to be shedding something—flowers in the spring, foliage in the summer, fruit in the fall, and bark in summer or fall. Yet, while this characteristic does not endear it to every householder, the many other interesting features of the madrona should cause it to be recognized as one of the most distinctive trees found along the Pacific Coast. Its showy flower clusters, colorful fruit, exotic evergreen foliage and distinctive bark, coupled with an individuality of form which it often exhibits, should easily outweigh its untidiness, even in the mind of the most meticulous gardener. Even its abundance does cause us to tire of it, for the madrona is an individualist. Rarely does it follow a definite pattern of growth, and as a result each tree seems to express its own character or personality, lending an infinite variety to the appearance of this species. Unfortunately it is very difficult to transplant from its natural habitat—otherwise it might

be more widely used as an unusual accent in specific gardens.

The foliage of the madrona, which bears a superficial resemblance to that of the southern evergreen magnolia, is one of the most striking features of this tree. Mature leaves, which may vary from three to five inches in length, are oval in outline, thick and leathery in texture, dark glossy green on the upper surface and greenish-white beneath. They remain upon the tree until the early summer of their second year, persisting until new foliage has developed. The old leaves then begin to drop from the tree at irregular intervals throughout the balance of the summer and the early fall. The character of the bark, which is quite distinct from other trees in this region, varies with the age and size of the tree. While it is dark reddish-brown and scaly at the base of old trunks, young trees, as well as the upper trunk and branches of older specimens, have a smooth, thin, bright reddish-brown bark, which characteristically peels off in thin, irregular plates or strips—not unlike the sycamore. In the spring, the madrona is alight with numerous pendant clusters of small white, urn-shaped flowers which have a delicate lemon-like fragrance. In the fall these develop into bright orange-red, rounded berry-like fruits which provide a gay, colorful contrast to the deep green of the foliage. These brilliant berries, while not suitable for human consumption, are avidly sought by many species of birds, particularly band-tailed pigeons. Upon occasion, pigeons have been attracted to certain madrona trees in such number that the effect was reminiscent of the great flocks of passenger pigeons—now extinct—which once inhabited the Ohio and Mississippi basins.

In addition to its unique personality, the madrona has an interesting heritage. As a member of the heath family (*Ericaceae*) it is related to many plants well known to the

(Continued on Page 33)

*Prof. C. Frank Brockman, School of Forestry, University of Washington, brings us another interesting discussion in our series of articles on native Northwest trees.



Madrona (*Arbutus Menziesii*) at sunset,
Puget Sound.

—BROCKMAN PHOTO

ARBORETUM SPOTLIGHT

April Fairyland

TO THOSE who are perennially young and to those who have grown too wise to believe in fairies—we extend this special invitation.

Come about mid-April or, if the mild weather persists, possibly as early as Easter Sunday or even the last of March, to the Montlake entrance of the Arboretum at Montlake Place and Lake Washington Boulevard North and here is fairyland indeed. A land scintillating with the bloom of the Yoshino Cherry against a background of Incense cedar spires. Stroll through the lavish beauty of these trees laden with their white clustered flowers, drink of their youth and really live again.

The Yoshino Cherry,* *Prunus yedoensis*, is the famous one planted at Potomac Park, Washington, D. C., where some 800 trees surround the Tidal Basin. Those who have seen these cherries at the height of their bloom will never forget the spectacle. But then, if you cannot travel so far, come, please enjoy fairyland with us.

R. J. HANSEN

*This is an excellent tree for the small garden, averaging 35 to 45 feet in height. It is equally suited in many instances for street tree plantings. There is another form of this cherry called Akebono, with larger, pinker flowers. It is well worth seeking.

(Below)

Group of Yoshino cherries with Incense cedars in Montlake Section of the Arboretum.

—PHOTO BY E. F. MARTEN



Flowering Cherries in England

COLLINGWOOD INGRAM*

IF A MOTHER were asked which of her children she preferred, it is doubtful whether she would, or indeed could, give a clear-cut answer to such a very invidious question. For much the same reason I find it almost impossible to say, as I have been asked to do, which of the innumerable flowering cherries I like best. And even if I were able to do so it is highly improbable that my selection would coincide with that of the vast majority of the gardening public. Like most beginners, I originally fancied the more showy and flamboyant forms of the Sato Zakura—as the Japanese collectively term their garden varieties—but of late years my affections have turned to the more sober attractions of the truly wild species and to the simpler single varieties. In this I am not alone. When discussing the relative merits of the two types with a Japanese friend he explained his own personal preferences (which are, incidentally, shared by nearly all his compatriots) as follows:

“When I see one of the large-blossomed, gaudily-colored Sato Zakura,” he said, “I am irresistibly reminded of a painted, over-dressed courtesan; on the other hand, when I come across one of the mountain species in flower it recalls the charms of an innocent country maiden”—a simile which I thought was not inept.

Possibly another reason for my change of taste is that in England during the past few decades many of the Sato Zakuras have been horribly vulgarized by grossly over-planting, this being especially true of the variety Kanzan, of which there must be tens of thousands growing in the villa gardens and along the highways of the southern half of the country. Is it any wonder, then, that one's eyes have become wearied of so much blatant beauty?

In my opinion, the use of this gaudy exotic for roadside planting in a rural district of England is an inexcusable violation of the native scene—an act as unseemly and incongruous as would be the erection of a pagoda in the precincts of St. Paul's cathedral.

But these rather caustic comments do not apply to all the Sato Zakura. If employed in moderation and solely for garden decoration, many of them are highly desirable trees. In this category I would unhesitatingly include Ichiyo, Shirotae, Shimidzu Sakura and, of course, Yoshino, the cherry which every spring delights so many thousands of visitors to Potomac Park.

Whilst the coppery-red color of its unfolding leaves is inclined to clash with the purplish-pink blossom of Kanzan, when that foliage character occurs in a white-flowered form it serves as an admirable foil for the bloom. It is just this combination that makes Tai Haku, with its huge, snowy flowers, one of the very finest varieties in existence. A similar, or even more striking contrast between flower and foliage may be found in some forms of the Japanese Hill Cherry (*Prunus serrulata* var. *spontanea*)—a species which I have always considered among the most lovely in my collection.

As may be gathered from the foregoing remarks, I am very definitely prejudiced in favor of the wild species. Admittedly they are generally not so spectacular as some of the man-made, chromosome-gorged varieties that one usually sees in gardens, but the majority possess a grace of form and flower that is, to my mind, aesthetically infinitely more satisfying.

Although few, if any, of the Spring Cherries (*Prunus subhirtella*) that are now in cultivation can be regarded as genuinely spontaneous plants, most of them have retained much of their ancestral charm and are, on that account, well worthy of our consideration, this being especially true of those with delicate soft pink blossom. In their native land, these

*Mr. Collingwood Ingram is best known as the author of the most authoritative work on these popular flowering trees, “Ornamental Cherries,” published by Country Life Limited, London, 1948, but is also an experienced ornithologist and world traveler. We are fortunate to have this contribution from such a source.

Spring Cherries sometimes live to a prodigious age and finally attain a noble stature, but, since all such gigantic specimens are reputed to be centuries old, their ultimate size need not worry us. As a matter of fact, after reaching a medium height, they are fairly slow growing and may, therefore, be planted in any garden of moderate dimensions.

A still hardier species, and one that is perhaps even more lovely, is Sargent's Cherry (*Prunus Sargentii*). One of its outstanding features is the shining mahogany brown color of its trunk and main branches—a feature which greatly enhances the beauty of its closely massed rosy-pink flowers. Although naturally at its best in the spring, this cherry is very nearly as effective in the autumn when its foliage turns to almost every shade between orange and crimson. Coming from some of the more mountainous and northern districts of Japan—where it is known as the Oyamazakura—it is perhaps not surprising that in Sweden this species has been known to survive

55 degrees of frost (–23 degrees Fahrenheit) without suffering the slightest injury—a temperature so exceptional that it actually caused large fissures to appear in the trunks of some of the nearby native oaks.

For many years now I have been attempting to hybridize cherries of various species and some of the results I have obtained have proved most encouraging. Seedlings from a cross between *Prunus incisa* (the little Fuji Cherry) and *Prunus Sargentii* have yielded many delightful subjects. If these have shown no appreciable gain in the size or shade of their flowers, this has been more than compensated for by a marked increase in vigor. Because of this, and their looser and more elegant habit of growth, they make far better specimen trees than either of their parents; moreover,

(Continued on Page 33)

(Below)

Part of the author's collection of flowering cherries — numbering over 200 varieties — at Benenden, England.

—BY COURTESY OF "COUNTRY LIFE"



Flowering Cherries

JOHN C. WISTER*

THE Oriental flowering cherries are quite new in America, although they have been grown in Japan for more than one thousand years. They are developments mostly by the Japanese gardeners of cherry species of China, Korea and Japan, and through the long generations of cultivation have developed from the single-flowered wild types of white and pink to include both single, semi-double and double flowers in pure white, pale pinks and deep pinks, with a few odd colors such as yellowish-green. Here, on the Atlantic Coast, we get reports of red ones not hardy here, but suited to the Puget Sound area as well as to California.

Some species are said to grow 75 or more feet in height. Others seldom exceed 15 or 18 feet. There are both fastigate and weeping forms. At least one variety in the East flowers in the autumn as well as in the spring, and may bloom more or less continuously through the winter on the Pacific Coast, as it does in Ireland.

Samuel Brooks, an English nurseryman, imported a double white cherry from China in 1822, which the botanist, John Lindley, named *Prunus serrulata* in 1828. Later, the single form of this species was found growing in various parts of China, Korea and Japan. Miyoshi, the great Japanese cherry authority, believes that most of our cultivated varieties spring from this. Some few varieties reached Europe about 1850, but apparently they are not as widely known or grown there as in this country. Collingwood Ingram, of Benenden, Kent, is said to have the largest private collection there, about seventy varieties, and is the author of the most important British book on this subject, "Ornamental Cherries," published in 1948. In this country E. H. Wilson's "Cherries of Japan" was published by the

Arnold Arboretum in 1916, while Paul Russell's "Oriental Flowering Cherries" (1934) is Circular No. 313 of the U. S. Department of Agriculture. These apparently are no longer available. Unfortunately, the nomenclature, both of species and varieties, in these different works is not uniform, leading to confusion which is only equalled by the plants themselves, which have been so mixed up by the Japanese and American nurserymen.

Dr. George Hall of Bristol, Rhode Island, introduced the first double varieties in this country in 1862 and gave fifteen varieties to the Parsons Nursery on Long Island, but the collection soon disappeared entirely. President Clark of the Massachusetts Agriculture College brought in a Japanese cherry and planted it in Amherst in 1869 and the plant was said to have survived until the great 1938 hurricane. Dr. William S. Bigelow sent seeds of *Prunus Sargentii* to the Arnold Arboretum in 1890 and a few double varieties were said to have been listed by a Pennsylvania nursery about that time. The U. S. Department of Agriculture received thirty varieties in 1903 through the work of Dr. David Fairchild, since famous as a plant explorer and long head of the Bureau of Plant Introduction of the U. S. Department of Agriculture. He purchased fifty more varieties from the Yokohama Nursery Company in 1904 and twenty-five more for himself in 1906. Following that, various nurseries imported collections until the plant quarantine law of 1919.

In 1912, Yukio Ozake, mayor of Tokyo, presented nearly 2,000 trees to the City of Washington. The trees, of the variety Yoshino (*Prunus yedoensis*), were planted around the basin near the present Lincoln Memorial. When these began to flower, they attracted great crowds to Washington, as they were more spectacular than any varieties that had been seen up to that time. The trees have continued ever since to draw crowds, so much so that it is now a nightmare to try to see them

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by driving, as the cars go bumper to bumper, just as they do at Valley Forge at dogwood time. The life expectancy of these trees under our conditions is not known. They are apparently long lived in Japan, but losses already are occurring which may be from age or merely from local conditions. These cherries bloom in Washington early in April, and in the Philadelphia area about the middle of April. They follow in season the Japanese Spring Cherry (*Prunus subhirtella*) which has only very small flowers, but bears them in such quantity as to make a very spectacular effect in late March or about the first of April in Washington, D. C.

The trees planted along the Potomac south of the railroad bridge bloomed later than Yoshino. They were varieties of *Prunus serotula*. This species in its native China makes quite a tall tree and both it (and the related *Prunus Sargentii*) are considered hardier than the named varieties descended from it, many of which have not proved reliably hardy in Boston or in Rochester, New York. Many of the varieties are somewhat low growing and are said to be comparatively short lived. The fact that the varieties are so different from the supposed parent leaves a good deal of doubt as to the authenticity of the parent, or of what other species may have entered into the present varieties. Botanists have given differing opinions about this and the names of species and sub-species have been changed from time to time to add to the confusion. Undoubtedly, further botanical research will give us more information than we have at present.

There has also been great confusion concerning the named varieties. Japanese nurseries in the past were either utterly unscrupulous or utterly careless, or both. The few nurseries which exported plants, beginning about 1910, often were not actual growers but brokers, acting for small nurseries scattered all over the country, each of which apparently had their own code, or lack of code, of nomenclature. As a result, when commercial plants began to come in, such as those imported by the nursery of the late Mr. A. E. Wohlert of Narberth, Pa., a white variety would be re-

ceived under one name one year, but plants received under the same name next year would be pink. Mr. Wohlert did the best he could to straighten this out, but never fully succeeded, nor have subsequent nurserymen. The most important American contribution in this regard was made by Paul Russell in the circular quoted above, which is now unfortunately out of print. It is the only comprehensive work we have on the Japanese Cherry varieties. It describes many varieties very carefully and at the end of each description gives a list of other so-called distinct varieties which are identical with the variety described, or so close to it as not to be easily distinguished.

From Mr. Russell's work, American nurseries have more or less standardized their names, and now one can be reasonably certain of getting the best-known kinds, like Shirotae, Fugenzo or Kwanzan, true to name.

Mr. Wohlert's early catalogues described these late blooming varieties, which come in Washington about the 20th of April, and in the Philadelphia area between that time and May 1, as "Rose Flowering Cherries" and that nickname has more or less stuck, to distinguish them from the early "Spring Cherry" and "Yoshino" groups.

They bloom very freely, covering the entire tree and beginning at an early age, and are perfectly hardy in the Philadelphia area. The exact limits of their hardiness is not known. It has often been said that they grow where peaches can be grown. But the fine collection brought in by E. H. Wilson was wiped out by the cold winter of 1934 and 1935 and an equally large collection of the U. S. Department of Agriculture at their Glenn Dale, Maryland, station was so injured by that winter, when it went to 20 below zero, that the trees had to be cut down. One of the bad floods of the Potomac River had, about the same time, wiped out the collection south of the railroad bridge, so that today little remains of the original collections except the plants of Yoshino around the basin of the Lincoln Memorial.

(Continued on Page 30)

Flowering Cherries

W. H. WARREN*

ELEVEN years ago, in the March, 1942, issue of the ARBORETUM BULLETIN, I had the privilege of contributing notes on "Flowering Cherries." This note chiefly confirms previous recommendations and emphasizes the necessity of good, vigorous disease-free stock.

We have found that cherries originating from Japan had a poor type of root stock which inhibited vigorous growth. *Prunus avium* is the accepted root stock. There are selections of it which make for a vastly improved and uniform growth after budding.

Two pests have been troublesome at times. Brown Rot or Blossom Wilt may destroy the growing tips of both flower and shoot in the early stage just after buds burst. It seems to be worse on the various types of *Prunus subhirtella* and is equally injurious to flowering plums. The injury is often mistaken for frost injury when the young leaves in the bud are seen to be scorched and brown. The disease may be controlled by dormant strength of any standard fungicide. Thrips may cause similar injury by destroying buds just as they open. We have seen it at its worst on some of the flowering crabs where the buds look as if they have been withered by a hot wind. Use of D.D.T. will control. Consult your entomologist for the correct time to apply it. Both troubles contribute to an unsightly condition on cherries, causing dying out of the lower buds on the branches, contributing to loss of foliage except at the end of the branches. The branches then appear naked and ugly.

In pruning care should be taken to space the branches well apart in order to make a good framework of branches. Cherries have a habit of throwing their growth into a lower branch which if not controlled will soon take all the strength and surpass the rest of the branches. If discovered in time, it may be cut back sufficiently to keep it controlled. Sometimes, after such a branch gets established and robs

the remainder of the tree of its strength, it is desirable to go along with nature and let this new growth make a new head, gradually eliminating or restricting the old head if necessary.

An excellent double white cherry making a large, vigorous tree is the double Mazzard Cherry, *P. avium* var. *plena*. It is not grown as freely as it should be.

During the past 15 years or so, the nomenclature of the cherries has been clarified and most varieties assessed for their true worth. The publishing of Mr. Collingwood Ingram's book, "Ornamental Cherries," in 1948, has been helpful. This is the most authoritative work since "The Oriental Flowering Cherries," by Paul Russell, was published by the U. S. D. A. in 1934.

Generally speaking the double forms last longer in flower than the single types. The singles for the most part have more vigor and longer life. The Sargent Cherry comes quite variable from seed as do the Higan Cherries (*P. subhirtella*). There is a great opportunity for further selection of good types of both these species and hybridizing them to get better double forms of flowering cherries.

The variations of flowering cherries which we like best are the ones commonly grown at the Arboretum. Sargent's Cherry appears to be exacting in its requirements and will not thrive unless it has ample moisture.

The autumn cherry (*P. subhirtella* var. *autumnalis*) and Fudan-zakura are notable because they are the first to bloom in the spring. The latter, known also as *P. serrulata* var. *semperflorens*, seldom blooms continuously in winter but may be readily forced any time after the New Year. The Higan cherries may be similarly forced.

Of the double forms of Higan Cherry, four in all, we like Fukubana (Momijigari) the best with deep rose flowers. Yoshino makes a fast growing, large tree. Ojochin or Tai-haku are the choice in single white; Mr. Fuji (Shiro-

(Continued on Page 35)

*Mr. W. H. Warren is Park Administrator for the City of Victoria, B. C., Canada.

The Whitcomb Cherry

DAVID WHITCOMB*

For a number of years the beautiful Whitcomb Cherry has been a prominent spring feature in the Arboretum, as well as in many Seattle gardens, and for that reason we have asked Mr. David Whitcomb, of Edmonds, Washington, to tell us what is known of its history.

*The Arboretum trees, with their clear, rose-pink flowers, appear to be examples of *Prunus subhirtella* var. *rosea*, of Collingwood Ingram's authoritative book, "Ornamental Cherries," but from Mr. Whitcomb's following account it would seem that his original tree may have been the autumn cherry, *P. subhirtella* var. *autumnalis*.*

IN 1913, soon after purchasing the mile of upland extending from Richmond Beach to Edmonds along the Sound, now known as Woodway Park, I built The Lodge just north of Deer Creek bridge. On the southerly side of the brick entrance gate posts I planted a flowering cherry.

A dozen years later Snohomish County built the present high concrete bridge and relocated Park Road. The engineers told me that they would have to move the cherry, "but only a few feet." With a big ball of earth and the roots injured as little as possible I moved the then sizable tree on a stoneboat to a permanent location, I hoped, in my planting south of the new house I had already located half a mile north.

The tree blossomed furiously for two seasons, which should have warned us to take more heroic measures than we did to save it. It died soon afterward.

The late Fred Cole, who laid out my grounds and most of the larger places in Woodway Park, recognized it as an unusual specimen and started propagating it, especially for some clients in The Highlands, who are proud of it. Mr. Adams of Richmond Nurseries has since had it propagated extensively in Oregon.

I have always understood it was a specimen

of *Prunus subhirtella autumnalis*, although I do not find it in Bailey's Manual. Mr. Cole so referred to it. I have no record of where it came from, although I have hunted through a lot of my early bills.

Its distinctive quality was not so much that it blossomed profusely, but that it remained bright with blossoms from December into late spring. About February each season it always seemed to have a second burst of bloom while the December blossoms were still bright.

At present I have only one so-called Whitcomb Cherry, bought from Richmond Nurseries. To date it has not shown the early blossoming and long blossoming season of my original tree.



A branch of the Whitcomb Cherry in the Arboretum.

*Mr. David Whitcomb, Sr., for whom this cherry is named, is a long-time resident near Edmonds, a few miles north of Seattle.

Cherries in the Arboretum

ROBERT J. HANSEN*

THE JAPANESE flowering cherries, principally along Azalea Way, are now regarded as the most outstanding tree plantings of landscape character in the Arboretum today. The signs of early youth, slowly disappearing with the lapse of some fifteen years from original planting, are gradually being superseded by maturing personalities of characteristic growth. And yet even for these cherries maturity is so far away. One ponders the future, wondering as to who will behold the beauty of such massive trees, possibly some forty feet or more in height.

In recognition of the popular appeal of these trees, the Arboretum last year published a "Cherry Time" leaflet featuring a cherry trail, where in a short distance one could become acquainted with twelve different cherries, both species and hybrid forms. We hope in this way to better serve our many visitors who wish to become more fully informed about this fine group of trees, which in most cases are readily available in the local nursery trade.

The trail commences at the north end of Azalea Way, just opposite the Administration area, and extends to Woodland Garden. Time permitting, one may continue the walk among the cherries to Rhododendron Glen, where additional specimens and groupings are to be found; however, the most representative collection of trees is confined to the cherry trail area.

In the average year the species come into bloom before mid-April, although a mild March will often bring them out earlier. If the temperate winter continues this year, we can well look for bloom by mid-March. Those in this group are the Sargent Cherry, *Prunus Sargentii*; Takasago Cherry, *Prunus Sieboldii* (syn. Naden) and the varieties of the Higan Cherry, *Prunus subhirtella*, which include the autumn form and the weeping type.

The prolific planting throughout the Arboretum of the Yoshino Cherry, *Prunus yedo-*

ensis, indicates the high regard expressed in its favor. It behooves others to take equal note of this fine tree. The spectacular grouping at the Montlake entrance to the Arboretum is known to many, so it is fitting that the "spot-light" in this issue is devoted to this famous cherry.

With the exception of the Takasago Cherry, whose flowers are semi-double to single, and a double flowering form of the Weeping Higan Cherry, the other species bear single flowers.

Those of *Sargentii* are a deep pink. It is considered one of the larger trees, upright in form, easily attaining 60 feet. The flowers of the *subhirtella* (Higan) group are variable in color, often deep pink fading to lighter shades. The trees will probably average between 20 and 25 feet in height, making bushy specimens with a well-rounded head of spreading branches. There is a refined aspect about these trees; light, slender branches patterned with a delicate twig texture and clothed with fine textured small leaves.

Many of our specimens of the weeping form of Higan Cherry here attain a high, arching crown, some now reaching 20 feet. Each year these trees present a more beautiful aspect as they increase in height. It is claimed they will eventually build up to 50-foot trees. To our way of thinking these particular specimens present a more attractive habit than the mop-type of growth frequently seen and so prevalent in this area.

In most cases this high arching type of growth is spontaneous. We simply allow new vertical shoots, which appear above the understock, to remain, gradually removing some of the more prostrate branches. Trees which show no indication of this characteristic may have branches staked upright to induce such growth.

Another form of the Higan Cherry, most popular because of the rose-red blooms, is commonly known as Whitcomb Cherry in the nursery trade. Frequently this is listed as variety *rosea*. There is an attractive grouping

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now, twenty-five to thirty feet in height, at the stone cottage opposite the rock garden.

The Takasago Cherry, *Prunus Sieboldii*, is listed by local nurseries under the name of Naden. Upright in form, it resembles the variety Kwanzan but is somewhat more spreading; the height ranges between twenty and twenty-five feet. The flowers are semi-double or single, light pink often fading to white.

The double flowering cherries are much in contrast to the species as regards to form and texture. Upright or spreading in habit, they present a branching pattern which is often stiff, the branches thick and heavy with stubby twigs bearing coarse-textured leaves.

In most cases the blooming period extends from mid-April to mid-May. To many people these heavy clusters of double bloom are more spectacular than those of the single flowers of the species, although their beauty may be slightly impaired by expanding foliage. Frequently, after the rainy days of April, early May is a more favorable time to enjoy the garden, so it is understandable that those with

average sized grounds will select one of the many double flowering cherries.

Here follow brief notes on a number of these, all of which are varieties of *Prunus serrulata*. They are given in the approximate order of bloom.

Usually the first to attract attention about mid-April is the Shirotae Cherry, more commonly called Mount Fuji. The abundant semi-double flowers are pure white. It is wide-spreading, often extending thirty-five feet while not attaining much over twenty feet in height.

Then follows *Fugenzo* with deep rose-pink flowers fading to lighter pink against young coppery brown foliage. It appears to be a spreading tree growing about twenty-five feet tall.

Horinji has light pink, semi-double flowers while the young foliage is greenish brown. It has a stiff upright habit of growth, although its height is said rarely to exceed fifteen feet.

Kwanzan is the most common, the most plentiful and perhaps the most overused of

the double flowering cherries in the gardens today. Most people recognize it by the typical vase-shaped habit of growth and the heavy clusters of deep pink flowers. It will easily reach twenty-five feet or more in height. To many the precise stiffness of this tree is objectionable but it may in part be softened by correct pruning, reducing the side branches back to an outside bud, thus encouraging outward growth.

Shogetsu seems more shrublike in habit; the branches have a pendent quality. Its stature is low, only twelve to fifteen feet high with a spread to twenty feet. The abundant double white flowers are similar to those of Shirotae except that they come at least two weeks later. Once the refined beauty of this tree is known, it will be far more widely planted.

The fastigate growth habit of Amanogawa will limit its use; frequently it must be passed by, but where occasion allows it makes a fine

accent tree. The tree matures at a height of twenty-five feet while retaining its slim figure. The light pink flowers soon fade to white.

The great popularity of flower arrangements has influenced many gardeners to select plants suited to their decorative modes. One tree which will satisfy such a need is the Ukon cherry, which has light greenish-yellow flowers. Those limited for space, however, must omit it in favor of more colorful bloom.

Each year when we see the trees of Ojochin flowering by the pool in Rhododendron Glen, we realize that this is an extremely beautiful cherry deserving wide use. Apparently it is neglected only because it is unknown to nursery and gardener alike. The abundance of the blossoms and their character is particularly pleasing. The large single flowers have notched petals which gives them a crinkled appearance, frequently simulating the effect of semi-double bloom. They are light pink fading soon to



A branch of Ojochin by the pond on Azalea Way.
—PHOTO BY E. F. MARTEN

(Below)

Two trees of Shirotae on east side of Azalea Way.
—PHOTO BY E. F. MARTEN



white. The tree itself is upright in growth yet maintains a broad spreading crown, often heading out low up to twenty-five feet.

It is safe to say that Shirofugen is the last of the *serrulata* hybrids to bloom. Those who see it, generally in mid-May, will find a tree laden with flowers of clear pink, fading to a pure white in the center. The very double flowers open flat to nearly two and a half inches across and their color is complemented by the deep bronze-green foliage.

Shirofugen makes a wide-spreading tree with low, arching branches somewhat shrub-like in character. From all indications it will assume a minimum span of thirty feet, while attaining a height of twenty-five feet. The tree has a habit of blooming again in mid-June. While not prolific at this time, the flowers are scattered among the expanding leaves to the surprise of all who pass by.

Although Ichiyo is not found in the Arboretum collection, it is well worth having. The flowers are a shell-pink and often have a distinctive leafy structure in the center of the flower. It is said the tree easily reaches twenty-five feet or more and is upright, yet has a spreading manner of growth.

After all this discussion, it may be difficult to decide as to which one of the many beautiful cherry varieties you will choose for your own garden but there are some practical aspects to consider in making such a selection.

When using a cherry as a specimen, one must remember that the fleeting beauty of the flowers will last only from two to three weeks. It is therefore important to consider what the tree has to offer during the other forty-nine weeks of the year. Since these cherries bear no fruit and rarely have any foliage color to brighten the fall season, one is dependent mainly on tree form and branch pattern for beauty during the major part of the year. In final analysis such factors as the type of tree, its height and location in the garden must be carefully weighed in order to achieve pleasing results the year around.

Cultural requirements of the cherry are so simple that they frequently are omitted. One absolute demand is for a well-drained situation, as the tree prefers a light sandy type

of soil. If your garden soil is on the heavy side, containing appreciable amounts of clay, you should consider substituting a flowering crab-apple for the cherry. Very often a cherry will grow for a number of years on a heavy soil, then suddenly die with no apparent cause.

Structural pruning such as removal of cluttered, competing and cross branches is required of all trees. But any further pruning should be considered as to its effect on the character of the tree form. This consideration of the framework branches which will comprise the future branching pattern and tree form is most neglected and perhaps least understood.

So many people fail to realize that a tree grows in height and spread by elongation of the tips of the branches, not by elongation of the trunk from the ground. Branches on a tree will remain in the exact position and height on the trunk as when it was a seedling and through its life span unless they are removed by natural causes or mechanical pruning. The change which does take place, however, is that both trunk and branches yearly increase in diameter. Once this basic concept of growth is clear one can study a tree and know that good or harm will result from pruning.

(Below)

One tree of a group of *Prunus Sieboldii*
in the Arboretum.

—PHOTO BY E. F. MARTEN



Oriental Flowering Cherries in the Seattle Park System

A. W. GALLAHER*

THE Seattle Park System is fortunate in having what is probably one of the most representative plantings of the different types of flowering cherries on the Pacific Coast. These beautiful spring blooming trees add much to our more or less somber landscape in April and May. Some of these trees are old enough to have reached a mature state and show what may be expected in form and general appearance, as they approach maturity. We have found them hardy and quite free from disease. Occasionally, however, a well-established and apparently thrifty tree will die, and for this we can offer no good explanation. This does not happen often enough to constitute a problem, and probably a little research would give us a simple answer. They respond readily to reasonably good care. A little cultivation, feeding and adequate water will produce almost immediate results, but we have many plantings where they suffer considerable neglect and still continue to grow and bloom. They resent poor drainage and will usually be short lived in such an environment. Fungus root rots and crown gall have been known to injure some of our trees, but it has never been widespread and usually can be attributed to local injury or poor soil conditions. They are sometimes subject to San Jose scale and, of course, are attacked by our infestations of tent caterpillars, both of which can be controlled by spraying.

Most of the cultivated varieties of Japanese flowering cherries are placed under *Prunus serrulata*, described as medium sized or low trees with flowers appearing just before or with the unfolding leaves. The Japanese have listed more than 120 varieties, but differences are so slight that it would be difficult to key them out. Nomenclature is not reliable, only a very few being catalogued by American nurserymen. Several years ago a movement was start-

ed by some nurseries in Oregon to give them occidental names, but was not successfully carried out and naming remains as confused as ever. Propagation of named varieties is carried on by budding or grafting and mazzard is the favorite understock of most growers. The Japanese use a form of *serrulata* that apparently roots easily from cuttings as an understock. The double flowered varieties do not fruit, but seedlings of the single flowered ones cannot be expected to come true to type. Tree forms can be classified as trees with pendulous branches, trees with fastigate branches and trees with spreading or upright branches. Flower forms are single, semi-double and double, and colors are described as greenish-yellow, white and pink.

Japanese cherries resent heavy pruning and severe cutting back of heavy lead branches will produce disastrous results. They can be trained or opened up when young trees by bud pinching or light pruning. However, since the flowers are mostly pendulous and are seen at best advantage when looking up at the branches, judicious removal of lower branches to permit walking underneath them is helpful. Bank and terrace plantings are particularly effective especially with many of the single flowered varieties. The hilly terrain of much of our Seattle park system has enabled us to take good advantage of this. Some of the sturdier growing varieties make useful as well as very beautiful shade trees.

The earlier plantings of flowering cherries were made in Volunteer Park, probably in the early 1920's. The writer does not know the source of this stock, but it included many of the best-named varieties. These were at one time named and labeled with metal tags, but these tags have long since disappeared. Mr. Paul Russell of the U. S. Department of Agriculture was one of the authorities used in naming these, as was also Dr. M. Miyoshi of the College of Science, Imperial University of

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Tokyo. Included in this old list under *Prunus serrulata* are the following names:

Shirotae (snow white)
Beni-Torano
Amanogawa (very fastigate)
Gyoiko
Ukon (greenish-yellow)
Temari (very double)
Fugenzo
Kwanzan (Kanzan)
Oh-Nanden (probably Naden)
Tanko-Shinju
Ojochin
Botan-Zakura (Bhotan)
Yedo-Zakura (Yedo)
Shogetsu
Shiro-Fugen

Also included are Yoshino (*Prunus yedoensis*) and Takasago (*Prunus Sieboldii*).

In 1930, we received as a gift from the City of Yokohama approximately 4,000 Japanese cherries of several different varieties, including many Kwanzan and many single flowered varieties. Also two varieties with greenish flowers were included. These were Ukon and probably Gyoiko. Including so many trees of the same family in one park system presented quite a problem, as indiscriminate planting of Japanese cherries is not generally desirable or good landscape design. These trees were good nursery-grown stock and were lined out in our city nursery while planting areas were mapped out and prepared. When this was done, we then proceeded with the planting, and there is hardly any part of our widespread park system that does not include plantings of these beautiful trees. Many of the smaller single flowered varieties were planted in informal groups along our boulevards. These have done quite well, and a drive down Lake Washington Boulevard in early April will show many of these groups in bloom. Around the circle at Seward Park and in conjunction with the Japanese Garden developed as a setting for the large stone lantern received as a gift at the same time, are planted a number of Kwanzan. These have done very well, being quite large now; they bloom profusely each year and the large double pink blooms are very showy. Many were planted also along the Andrews Bay side of the Seward Peninsula. The dark natural evergreen growth there makes an excellent foil for these trees, bringing out the full beauty of their pink bloom.

Many were also planted in the Lincoln Park area in random groups scattered through the natural growth. One particularly lovely grouping is on the steep bank dividing the upper play area from the lower ball field area at Ravenna Playground. These wide spreading, single flowered trees are well worth a visit in bloom time. Many Kwanzan are also planted on the west side of the playground and are scattered through the upper picnic area. These very thrifty trees have attained a height of 30 feet or more. Many flowering cherries of several varieties were used in the development of the park areas around the shores of Green Lake. Included in these are many greenish flowered trees of both varieties. Also included are Yoshino, Bhotan and, of course, many Kwanzan. These were carefully grouped, using evergreen plantings as a background wherever possible. An early morning walk around the lake at bloom time will never be forgotten.

Proceeding from the lower Green Lake area up through the picnic and Hostess House area east of Aurora Avenue, there are many Japanese cherries planted informally and in conjunction with the shrubbery beds. The upper areas at Woodland Park, including the zoo, also have many cherries. These have done particularly well and many of them have attained considerable size.

One planting in particular, mostly of Kwanzan, is along and above the path leading from the upper picnic area to the overpass across Aurora Avenue. These trees are getting quite tall, making a very beautiful sight as one

There were two very old trees in the zoo area proper, one of which had to be removed when the new Feline House was constructed. The other one is directly east of the old Comfort Station lying just north of the Bear Grottos and the Feline House. These trees were true specimens of a large flowering double white known as Mt. Fuji. This name is probably correct. It is a low-growing tree with a widespread crown. The spread of the tree we have left is probably in the neighborhood of 40 feet. It always blooms beautifully and in the writer's opinion is one of the most beauti-

(Continued on Page 35)

The Flowering Cherries of Hanleylands

MRS. E. B. HANLEY*

OUR cherry collection is fairly representative of the varieties of Oriental Cherries grown in the Northwest. It was selected originally by the late Mr. B. O. Case of Vancouver, Washington. He was a recognized authority upon flowering cherries and introduced some successful originations of his own. Mr. Case ordered our stock directly from China and Japan from growers in whom he had confidence and with whom he exchanged information over a long period of years. The varieties chosen for us were selected as suitable for our soil, climatic condition, and position they were to occupy in our garden planting.

With few exceptions, they have accommodated themselves to their environment in every way. They are now reaching maturity and without being guilty of over-statement they are, at best, the most freely flowering and colorful collection in this part of Oregon.

As we grow flowering cherries we find their needs simple; a well-drained sandy loam—good drainage is most important—sufficient moisture at intervals during our dry hot summers; a mulch in summer over the root system; protection of the trunk to keep from blistering the bark of the young trees; late winter spray of lime and sulphur and summer sprays if infected by leaf slugs or caterpillars. Pruning is held to a minimum. We try to control growth by the removal of twigs; if necessity demands we prune in June. The only fertilizer we use is a well-decomposed mixture of straw used as bedding in the cow barn.

We keep a constant watch for borers during the summer months and in fall use a bait around the trees to destroy field mice which tunnel under and eat the fine rootlets. Rabbits are no longer troublesome—our dogs take care of that.

The following is a partial list of our collection as Mr. Case planned it: *Sargentii*, Yoshino, Day Break, Asaki Mikuruma, *subhir-*

tella erecta, *pendula*, and Cheal's Cherry, Beni Higan, Mt. Fuji, Monidigera, Ojochin, Onanden, Amanogawa, Avium plena, Shogetsu, Fugenzo, chinensis, Ukon, Shirofugen, and Botan-Zakura. We have added David Whitcomb, Paul Wohlert, and some native species.

Our garden plan uses group plantings of flowering cherries in combination with lilacs and flowering crabs. Evergreens are used as backdrops or accent where needed. Ground covers are limited to violets of many hues interspersed with early bulbs and hardy rock plants of creeping form.

So far as the public is concerned our planting of Sekiyama, better known as Kwanzan, along the driveway leading from the county road to the home grounds, is the only thing noticed. These trees are a very special form of this variety and highly spectacular when in bloom. The trees are almost uniform in size and, while of sturdy and robust growth, do not have the stiff angularity usual to this variety. No pruning shears has ever touched them, their lower branches almost touch the ground. They bloom with a reckless abandon each year; it would seem that not another blossom could hang from the branches. Their deep rose color is shown in bold relief against their brownish foliage flushed with lively color and when the petals fall they form a deep-piled carpet upon the driveway which could be fitting beneath the chariot wheels of ancient Rome.

All in all our cherries are a joy and a delight. The memory of their flowering lingers with us through the rest of the year as an assurance that each coming spring will be more beautiful than the last.

✓ ✓ ✓

The state convention of the Washington State Federation of Garden Clubs will be held in Meany Hall, University of Washington Campus, June 16, 17 and 18. The Arboretum will sponsor the convention.

*Mrs. E. B. Hanley, our Oregon Editorial Board member, writes of the cherries in her home garden in Oregon. "Hanleylands Farm" is located in the valley of the Rogue River in Southern Oregon.

The Arboretum Bulletin

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No part of this BULLETIN may be reprinted without the authority of the Arboretum Foundation.

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9 a. m. to 4:30 p. m.
Monday through Friday
Phone MInor 4510

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Special Notice

To keep memberships in the Arboretum Foundation in good standing, dues should be paid during the month payable. Active memberships more than three months in arrears and previously established \$2 memberships more than thirty days in arrears will be dropped and THE BULLETIN will be discontinued.

Arboretum Membership Blank

<input type="checkbox"/> Active	\$ 5.00
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The Arboretum Foundation,
University of Washington Arboretum
Seattle 5, Washington

I hereby apply for membership in the Arboretum Foundation and remittance for same is enclosed to cover dues for the next succeeding 12 months.

Name.....

Address

All memberships are non-assessable.

Notes and Comment

Readers of *LASCA Leaves*, the quarterly journal of the Los Angeles State and County Arboretum, Arcadia, California, will be interested to note that plans are being formulated whereby the Southern California Horticultural Institute will join forces with California Arboretum Foundation, Inc., to expand the format of this publication.

Recollection will be made that it was through the efforts of Southern California Institute originally that the Los Angeles State and County Arboretum was founded. Therefore, it now seems appropriate that the two closely linked institutions should combine their resources, to be released through the channel of *LASCA Leaves* as their joint official quarterly publication, in the interest of horticulture as carried on in Southern California.

At the last group meeting of the Arboretum Units (January 22) a total of 66 was served luncheon in our Arboretum Clubhouse.

This increase in popularity of the clubhouse necessitates, now, an addition of the original equipment for serving guests.

Perhaps someone has on their unused list a number of knives, forks and/or spoons to donate to the supplies. The plates and cups are of such practical material and design that donations of cash to purchase more of these would seem the better plan and would be appreciated. Large serving plates and bowls of any material or design would be most acceptable, however.

Additional projects for Arboretum Members:

1. A directory of Arboretum Foundation members. Just a simple mimeographed roster, with address and Unit affiliation.
2. Volunteer office help during March. Call Gene Webb, MI. 4510.
3. Mr. Mulligan was greatly pleased with the help given last summer by two of our Units in weeding some of the beds, and would welcome more volunteer weeders.

The Gardens Committee of the National Trust for Scotland has arranged a novel tour by chartered ship (the *Lady of Killarney*, 3,200 tons) to visit five of the most famous and remarkable gardens along the west coast of Scotland, starting May 6 from Liverpool or May 7 from Ardrossan, Ayrshire—a season when rhododendrons and many other plants should be at their peak.

This tour has been arranged by Dr. J. M. Cowan of the Royal Botanic Garden, Edinburgh, who will also act as host en route. The gardens to be visited and their owners are as follows:

May 7, Colonsay, Lord Strathcona
May 9, Inverewe, National Trust for Scotland
May 11, Arduaine, Sir Bruce Campbell
May 12, Castle Brodick, Duke of Montrose
May 13, Stonefield, Stonefield Castle Hotel

The cost of the week's cruise ranges, according to accommodation, from 30 guineas (\$90) up to 50 guineas (\$150). Applications for accommodation should be made at once to the Organizing Secretary, Scottish Gardens Cruise, National Trust for Scotland, 5 Charlotte Square, Edinburgh 2. Berths will only be reserved on payment of a deposit of ten guineas each (\$30) with the balance payable by March 31.

Illustrated information leaflets are available in the Arboretum office.

✓ ✓ ✓

Test plots for two new grasses were established early last October in the Saxifragaceae area. One is planted to Illahee Fescue and the other to Merion Bluegrass. The plots are approximately 400 square feet in size. About fifty square feet in the center of each one was fumigated with Methyl Bromide. This fumigant under proper conditions will kill weeds, weed seeds, all stages of insect life and some of the fungi. Since the balance of the area is left untreated this should also make an interesting check on the value of this soil fumigant.

The tests were initiated through the courtesy of Mr. Carl O. Weiss of the Cascade Sprayer Company. He applied the soil fumigant and supplied the grass seed.

Literature on Flowering Cherries

(Following available for reference in the Arboretum Library):

Cherries of Japan, Ernest Henry Wilson, 1916
Ornamental Cherries, Collingwood Ingram, 1948
Ornamental Flowering Cherries, Paul Russell, U. S. Dept. of Agriculture, Circular 313, 1934
Rhododendrons, Azaleas, Magnolias, Camellias and Ornamental Cherries, A. T. Johnson, 1948

✓ ✓ ✓

Mr. Edward L. Rosling, vice-president of the Arboretum Foundation and chairman of the Membership Committee, has announced the dates of the 1953 Membership Drive as March 23 to April 23. Committee members are: Mr. Albert F. Hull, Mr. Burle D. Bramhall, Mrs. John A. Clark, Mrs. Homer Bergren and Mrs. J. E. Blume.

Talks will be given to the Kiwanis and Lions, both in the University District and downtown, illustrated by slides of the Arboretum.

Each new member joining the Foundation will be given a plant, and the member obtaining the most new members will be given a grand prize of a large unusual plant of considerable value.

✓ ✓ ✓

The Cherry Walk will turn into a fairyland of bloom about April 10 when the Yoshino and Higan cherries burst into flower. From then on to the middle of May the Cherry Trail will be a constant source of delight. A detailed brochure of the many varieties on display along the trail is available at the Arboretum office.

✓ ✓ ✓

As has been done for the past three years, a display of the flowering plant of the week "Now in Bloom in Your Arboretum" will be seen each week in the window of Harry Hartman, Bookseller, Inc., Fifth Avenue. Members of our new Arboretum Unit No. 10 will take charge of these displays for the season. We hope you will enjoy them and will look for the mass displays in the Arboretum grounds.

✓ ✓ ✓

One rose which makes a strong claim of being an evergreen vine is the climber Mermaid. In the past two years at the Arboretum it has retained its foliage through the winter months. The lowest temperature recorded during his period was 19 degrees.

BOOK REVIEWS

The Journeys and Plant Introductions of George Forrest. Edited by Dr. J. M. Cowan. Published by Oxford University Press for the Royal Horticultural Society, London, November, 1952. Price, 30 shillings.

To anyone who has even a slight knowledge of the immense contributions made by the late George Forrest to the gardens of Europe and North America, or who has grown or seen any of his better known plants, this book will prove both a delight and a revelation. Few people, except those most closely concerned with his operations during those twenty-seven years from 1904-1931, can have had any real appreciation of the quantity and variety of dried plant material and of seeds which he sent home to Great Britain. Here now is the first more or less detailed account in one finely produced and illustrated book to tell something of what he accomplished, written by members of the staff of the Royal Botanic Garden of Edinburgh, where his 31,000 specimens were sent, together with a superb collection of nearly a hundred photographs of his plants, many of them from Forrest's own negatives, with five in color; in addition, ten others taken in the field, showing the man himself, his collectors, and the type of country over which he worked.

In the introduction by Dr. Cowan it is stated that their original intention had been to publish a full descriptive list of all his plants, but that, owing to the magnitude of the task and the depleted post-war staff, it was found impossible to continue with this plan. Instead, the present work was undertaken to emphasize especially his new plants, dealing more fully with the most prominent genera such as *Rhododendron*, *Primula* and *Gentiana* and limiting text on others to one or two pages and, as a rule, one photograph.

Certain disadvantages of this plan, however, are evident, since some genera containing species of considerable horticultural value sent home by Forrest, such as *Betula*, *Malus*, *Prunus*, *Vaccinium* and *Viburnum*, are entirely omitted, for the stated reason that "in these genera Forrest was not responsible for any new and outstanding introduction, although he may have discovered a number of species which are new and others may have been reintroduced by him." Others, including *Berberis*, *Meconopsis*, the several coniferae and *Sorbus*, are treated too briefly, and a few of very minor importance in gardens (*Hartia*, *Megacarpaea*, *Rhodoleia* and *Saurauja*) might almost have been omitted to provide more space for the former. However, the editor clearly realizes and admits such unfortunate deficiencies in the book.

The appreciative review of Forrest's life work, written by Sir William Wright Smith in 1932 and originally published in the *Rhododendron Society Notes*, is here reprinted. It provides a clear picture of his upbringing, his hardy, self-reliant character, his great abilities as a naturalist, collector and photographer, and as a trainer of competent native helpers, confirms the quality as well as the quantity of the material he collected so assiduously and thoroughly, and regrets, as many must do, that he never found time to write a full account of his own wide travels and astonishing experiences.

The 28-page chapter entitled "The Journeys"

by E. H. M. Cox (author of *Farrer's Last Journey and Plant Hunting in China*) is certainly the most exciting and enthralling in the book. While it covers the whole period of Forrest's life work—eight separate journeys in southwestern China or the contiguous areas of Burma and Tibet—it is most detailed on the third expedition of 1912-1915, of which the fullest account exists in correspondence with the late Mr. J. C. Williams of Cornwall, England, one of his principal supporters. From it one can learn something of the appalling hardships, the difficulties and the problems of plant collecting in that area at that time and something also of its rewards when he first found a plant like *Rhododendron Griersonianum*, *Magnolia mollicomata* or *Gentiana sino-ornata* in full bloom.

The chapter on *Rhododendrons*, appropriately written by Dr. Cowan, extends to the same length as the last, quotes some of Forrest's information and opinions on the species in the wild state, and then describes or comments on a considerable range of his most outstanding and horticulturally valuable introductions in the different series. It is augmented by fifteen illustrations, of which nearly half were taken in their native home; of the two in color, that of *R. Griersonianum* is disappointing, but of *R. lacteum* at Tower Court, Ascot, much more satisfactory. For growers of *Rhododendron* species this is filled with interesting details. At the end of the book an eight and one-half page appendix lists by series all the new *Rhododendron* species, subspecies or varieties found by Forrest, with their type numbers and awards, if any, as well as others introduced but not discovered by him. Many of his novelties, however, have by later work on the genus been reduced to synonyms of other species.

Dr. H. R. Fletcher, formerly at Edinburgh, now director of the Royal Horticultural Society's Gardens at Wisley, Surrey, has been responsible for an even longer chapter on the *Primulas* collected by Forrest—forty-two new species, with no fewer than fifty introduced by him to British gardens—an amazing record, only excelled by the legions of his *Rhododendrons*. Dr. Fletcher reviews in turn the species of each of the sections concerned, beginning with *Candelabra* and concluding with *P. obconica* and *P. malacoides*, which latter he considers, "beyond all debate, Forrest's most important introduction." In *Primula*, one might add. The nine photographs in this chapter by Forrest are almost without exception first class in their quality and in reproduction, particularly those (full page) of *P. secundiflora* and *P. serratifolia*.

The remainder of the book, covering nearly 150 pages, deals usually briefly and concisely in alphabetical order, with 58 different genera of which Forrest collected material, including *Acer*, *Camellia*, *Daphne*, *Gentiana*, *Iris*, *Lilium*, *Magnolia*, *Meconopsis*, *Paeonia*, *Pieris*, etc. providing materials for every sort of garden. Nearly all are illustrated by excellent photographs of living plants; only occasionally have plates from the "Botanical Magazine" been utilized.

In most instances data is given concerning the more decorative species—the location, habitat, altitude, distribution, characteristics, and whether successfully introduced or if subsequently lost to cultivation. This has considerable value both

as a record and for providing most useful information on the plants themselves and their surroundings at home; it does not, of course, supply any detailed descriptions of the various species, or, as a rule, distinguish between related kinds in more than very general terms.

Finally there is an admirable index and a folding map, 14x10 inches, on a scale of about 33 miles to the inch, depicting the various areas covered by Forrest between 1904 and 1931.

As one would expect with a work from this source, typographical or other errors are almost non-existent. The reviewer has only noted one, namely *Pieris doyensii* for *P. doyonensis*.

In conclusion it may be said that for Rhododendron and Primula growers this book is an essential part of their library; for all others having any acquaintance with or interest in the flora of southwestern China it is filled with authentic information, admirable illustrations, and published at a most reasonable price.

B. O. MULLIGAN

The American Camellia Yearbook, 1952, published by the American Camellia Society, Gainesville, Florida.

The American Camellia Society's Yearbook contains the latest in Camellia lore and will be a treasure for anyone who is interested in these plants. Its fifty-six articles cover the entire field.

The section "Varieties and Nomenclature" offers a descriptive list of the new varieties developed on the Pacific Coast that are either already on the market or soon to be released, and tells of over 100,000 seedlings being grown in the West; tells also of the new varieties imported from Australia, the Tallahassee, Florida, seedlings and the Guichard Camellias of Nantes, France; gives a very good description of the nine sports of Herme; explains how the approved names of the Kunming reticulatas from China were arrived at, and lists and describes the patented Camellias.

That portion of the book devoted to "Plantings and Gardens" takes you with Ralph Peer on his trip through Europe ferreting out old varieties and gardens; gives notes by Mr. W. E. Bailey on planting and pruning, explaining some of the newer ideas in this field; notes some very good cultural methods in an article by F. H. Turner on raising Camellias on sand dunes; tells of cultural practices which could well be followed here in "Virginia Camellias"; sets forth excellent information regarding pruning and trimming for good bloom size and shape of plant, and fertilizing, especially for the gardener with limited space, in "Camellias for the Small Garden" and offers a solution to the gardener who would like to have Camellias but who resides where winter temperatures may drop a little too low.

The group of articles on "General Culture" should be interesting, in part, to everyone. It starts with the chromosome relationships in Camellias and carries on through Camellia breeding, X-ray exposure of seed, use of colchicine in breeding and methods, ways of producing blooms in seedlings in a shorter time, two methods of grafting Camellias used in England, top working of Camellias at Magnolia Gardens (which could be applicable here), methods of sealing Camellia grafts and materials used, post-grafting care, air-layering Camellias, best watering practices, the latest information on Krilium

and its effects on the soil, and the effects of DDT in the soil and on the foliage of Camellias.

Of interest to the reader who is "show minded" are the articles in the section "Shows and Flowers" dealing with flower classifications as well as the articles on flower arrangements, with some splendid illustrations of prize winning arrangements and the judges' comments.

The section "Historical" delves deep into the past for information regarding the first Camellia grown in various parts of this country, Japan and Europe, the varieties where and by whom planted, and where they can be found today. A revised article by Dr. H. Harold Hume on the part Kamel, Kaempfer and Linnaeus had in the introduction of Camellias to the gardening world gives credit where he feels credit is due.

For a touch of humor there is appended "The Case History of a Camellia Snob" a clever summation of how the "bug" does get you.

JAMES A. BUZARD

(N.B.—Membership in the American Camellia Society includes this splendid yearbook as well as the quarterlies which contain additional valuable information for all Camellia growers.)

Plant Hunting in Manipur, by F. Kingdon-Ward. Published by Jonathan Cape, London, England, 1952. Price, 15 shillings. With twelve photographic illustrations and two maps.

As anyone familiar with his previous works might expect, Kingdon-Ward has again written a delightful book of travel and adventure. The informality of his style makes the book seem more conversational than literary, as though a close personal friend were telling you of his trip, and the fact that he and his wife hunt lilies instead of lions in no way detracts from the excitement of the chase.

There are beautiful descriptions of this mountainous corner of India, its trees and flowers, which were his principal interest, its climate, its people, and its geological history, so that it is not just a book to be enjoyed by gardeners, but holds interest for anyone who takes a vicarious pleasure in reading about remote parts of the world.

Ten months were spent in Ukhrul, a large village situated at an elevation of 6,000 feet in the mountains of eastern Assam and here, in what he refers to as "Cobweb Cottage," the Kingdon-Wards made their headquarters while carrying out their plant explorations. Their particular assignment was to find good garden plants, especially trees and shrubs which would be hardy and flourish in our southern states, from Florida to California, and altogether they collected about 250 flowering species.

The length of their stay enabled them to see the flora in both flowering and fruiting seasons, and he shares with the reader his quiet satisfaction over the successful collection of seeds from a rare primula, and his understandable exasperation at finding that a magnificent crimson flowering cherry had been hacked down for firewood just before the seeds ripened.

His most spectacular find was a new species of lily, named *L. Mackliniae* in honor of his wife, "but known to its friends as the Manipur Lily. Standing five feet high, it bore five fully opened flowers of a delicate pink outside, satin white and unspotted within. The six anthers, trembling on their filaments, were a rich golden brown, and the pale green style made a perfect

(Continued on Page 29)

ARBORETUM NOTEBOOK

This department is published for correspondence and pertinent comments by experienced growers on interesting plants and their culture. We solicit your questions but space limitation necessitates the publishing of only such answers as we deem of general interest.

MARCH

Unless a change in the weather comes with cold and frost, by the time this copy is in the hands of the reader, there will be April's work to do before March's work is completed. This mild winter has pushed every growth beyond its usual self.

PLEASE—begin to bait for slugs. Even before this they may have eaten the tender blossom buds of primroses, *Rhododendron Gumpo*, et cetera. Bait should be spread at night or late afternoon, once every week. Greenhouses should also be watched for this pest.

If plants in the borders were not divided in fall they may be taken up now. The best growths to save are the small portions from the outside of the clumps. They should be replanted in soil into which bonemeal is well mixed.

Corylopsis is an outstanding shrub for this month. *C. pauciflora* has tender, yellow-green, drooping blooms covering the shrub. It is generally about three feet high and three feet in width.

APRIL

For something different, the following annuals are charming and seldom seen in gardens.

Gilia—soft lavender-blue flowers on stiff stems. The blooms are globular in shape and the plant reaches 24 or 30 inches.

Limnanthes Douglasii—a California wild flower, six inches high with good foliage and gay, yellow and white, saucer-shaped flowers.

Leptosiphon—an edging plant of jewel-colored flowers.

Phacelia—clear-blue drooping flowers.

Platystemon—twelve inches high with pale yellow, poppy-shaped flowers.

Hardy annuals deserve proper treatment to have glorious plants. To make sturdy, bushy growth pinch off the growing point of clarkias, godetias, annual chrysanthemums and others when they are four inches high. Side shoots may need pinching also when they are four inches long.

New growths of phlox, asters, delphiniums, etc., if carefully detached from the main plant at ground level or a little below may be rooted in sandy compost and form new plants. The old plant will be improved if the growth is thus restricted and the new plants will be ready to plant in the borders this fall.

This is the magic month to prune ivy. In a very few weeks, no matter how radically you prune, bright, new foliage will soon appear.

MAY

We often have a dry period in May. The shrubs and trees that were planted in late fall should have special attention.

This is the proverbial month for creepers and crawlers. A filled sprayer, easy to reach, is the solution.

It is interesting to note that the old standbys, aubrieta, arabis and early phlox make the most

striking displays this month. They are easy to propagate. Examine the plants for unflowered shoots—those with a growing point. These are easily seen and they make perfect cuttings. Cut them about two inches long. They do not need flats but may be inserted in soil liberally mixed with silver sand in a partially shaded corner. When they are three inches high, pinch out the growing bud to make them bushy.

Viburnum tomentosum Mariesii is probably the most striking shrub in the May garden. It has large, flat white blossoms growing in clusters not unlike some varieties of hydrangeas. They—the clusters—stand in horizontal rows along the branches.

The red huckleberry, *Vaccinium parvifolium*, is a beautiful Northwest native shrub which should be used more often in our gardens.

Although deciduous, it is interesting at all seasons of the year. Right now, in January, its delicate green branches have a soft smoky maroon appearance as it stands leafless on a rotted log. These maroon buds give promise of small pink flowers which will clothe each branch in early summer. The flowers are followed by brilliant red berries. These berries hang on until eaten by the birds in winter.

This *Vaccinium* sometimes grows to a height of 15 feet or more. The average height, however, seems to be about 6 to 8 feet. It likes partial shade and acid peaty soil. The delicate, shell-like appearance of this shrub adds a feeling of daintiness and contrast to a planting of broad leaf evergreens.

Vaccinium Myrtillus microphyllum, also red huckleberry, is a much smaller shrub. It grows from 6 to 15 inches high and likes the same conditions as its taller relative. The bright red berries turn a dark purplish red in the fall.

A planting of these two species, using *Cornus canadensis*, Creeping Dogwood, as a ground cover, would give an interesting display of flowers, berries and winter green and would help us to know and enjoy these native plants.

SALLIE F. COLE



When I was in the rock garden at the Edinburgh Botanic Garden I was much interested in a little lupin with silvery leaves and pale blue flowers. It was only about six inches high, with a nice, spreading, shrubby growth and undoubtedly a perennial. I was sure I had never seen it before, but it was something I sincerely wished to see again. After much searching I found a label, *Lupinus ornatus*. Isn't this the little California wild flower we see so often? I cannot find it listed in Bailey.

G. T. D.

(EDITOR'S NOTE: This was found and named by Douglas. Native east of the Cascade range from northern Oregon to southern British Columbia.)

List of Plant Names

(Continued from Fall, 1952, Issue)

Hosackia	after David Hosack, botanist, New York	<i>ianthinus</i>	violet, violet-blue
Hosta	personal name	<i>ibericus</i>	of Iberia, Spain and Portugal
Houlstonii	after G. Houlston, Chinese friend of E. H. Wilson	<i>iberidifolius</i>	iberis-leaved
Houstonia	after Dr. Wm. Houston, plant collector	<i>Iberis</i>	ancient name of Spain
Houttuynia	after M. Houttuyn, Amsterdam	<i>icosandrus</i>	twenty or more stamens
Hovea	probably after A. P. Hove, Polish botanist	<i>idaeus</i>	Mt. Ida (Asia Minor)
Hovenia	after David Hoven, Amsterdam	<i>Idesia</i>	after Eberhard Y. Ides, Dutch traveler, 1720
Howea	for Lord Howe's Island, where these palms grow	<i>idoneum</i>	suitable
Hoya	after Thomas Hoy, gardener to the Duke of Northumberland	<i>ignescens</i>	flame-colored
Huernia	after Justus Huernius, collector	<i>igneus</i>	fiery
Humea	after Lady Hume	<i>Ilex</i>	ancient Latin name
<i>humifusus</i>	sprawling on the ground	<i>ilicifolius</i>	ilex-leaved, holly-leaved
<i>humilis</i>	low-growing	<i>illecebrosus</i>	of the shade
<i>humulifolius</i>	hop-leaved	<i>illinitus</i>	varnished
Humulus	Lat., from humus, ground	<i>illustratus</i>	pictured
Hunnemannia	after John Hunneman	<i>illustris</i>	bright, brilliant, lustrous
Hunnewellianum	after well-known New England family	<i>illyricus</i>	of Illyria
Hutchinsia	after Miss Hutchins, of Bantry, Ireland	<i>imberbiflorus</i>	flowers beardless
<i>hyacinthoides</i>	hyacinth-like	<i>imberbis</i>	without beards or spines
Hyacinthus	name from Greek mythology	<i>imbricans</i>	imbricating
<i>hyalinus</i>	transparent, translucent	<i>imbricatus</i>	imbricated, lapping over
<i>hybridus</i>	hybrid, mixed, mongrel	<i>immaculatus</i>	immaculate, spotless
Hydrangea	Gr. hydor, water and aggeion, vessel	<i>immersus</i>	under water
<i>hydrangeoides</i>	Hydrangea-like	<i>Impatiens</i>	Latin, referring to seeds
Hydrocharis	Gr. graceful water plant	<i>impeditum</i>	tangled
Hydrocotyle	Gr. water and cup	<i>imperator</i>	commanding, imperious
Hydrophyllum	Gr. water leaf	<i>imperialis</i>	imperial, kingly
<i>hyemalis</i>	of winter	<i>implexus</i>	interwoven
<i>hygrometricus</i>	taking up water	<i>impressus</i>	impressed, sunken in
Hylocereus	wood and Cereus	<i>inaequalis</i>	unequal
<i>hylothreptum</i>	growing on wood	<i>inaequilaterus</i>	unequal-sided
Hymenanthera	Gr. membrane and anther	<i>incanus</i>	hoary
<i>hymenanthus</i>	membranous-flowered	<i>incarnatus</i>	flesh-colored
Hymenocallis	beautiful membrane	<i>Incarvillea</i>	after Pierre d'Incarville, French missionary
<i>hymenodes</i>	membrane-like	<i>incertus</i>	uncertain, doubtful
<i>hymenorhizus</i>	membranous-rooted	<i>incisifolius</i>	cut-leaved
<i>hymenosepalus</i>	sepals membranous	<i>incisus</i>	incised, cut
Hymenosporum	Gr. membrane and seed	<i>inclaudens</i>	never closing
Hyoscyamus	Gr. hog bean	<i>inclinatus</i>	bent downward
<i>hyphenanthum</i>	bearded flowers	<i>incomparabilis</i>	incomparable, excelling
<i>hyperboreus</i>	far northern	<i>incomptus</i>	rude, unadorned
<i>hypericifolius</i>	hypericum leaved	<i>inconspicuus</i>	inconspicuous
<i>hypericoides</i>	hypericum like	<i>incrassatus</i>	thickened
Hypericum	ancient Gr. name of a plant	<i>incurvatus</i>	incurved, bent inward
<i>hyperythrum</i>	reddish	<i>indentatus</i>	indented
Hyphaene	Gr. to entwine	<i>indicus</i>	of India
<i>hypnoides</i>	moss-like	<i>Indigofera</i>	indigo-bearing
<i>hypocrateriformis</i>	salver-shaped	<i>indivisis</i>	undivided
<i>hypogaeus</i>	underground	<i>inermis</i>	unarmed
<i>hypoglaucus</i>	glaucous underneath	<i>infaustus</i>	unfortunate
<i>hypoglottis</i>	under-tongued	<i>infectorius</i>	pertaining to dyes
<i>hypolepidotum</i>	scaly beneath	<i>infestus</i>	dangerous, unsafe
Hypolepis	Gr. a scale underneath	<i>inflatus</i>	inflated, swollen up
<i>hypoleucus</i>	whitish, pale beneath	<i>infortunatus</i>	infortunate
<i>hypophyllum</i>	under the leaf	<i>infractus</i>	broken
Hypoxis	old Gr. name, no application	<i>infundibuliformis</i>	funnelform, trumpet-shaped
Hyssopus	ancient name	<i>ingens</i>	enormous
Hystrix	Gr. porcupine	<i>inodorus</i>	without odor
		<i>inopinum</i>	unexpected
		<i>inornatus</i>	without ornament
		<i>inquinans</i>	spotted, discolored
		<i>inscriptus</i>	written on
		<i>insignis</i>	remarkable, distinguished
		<i>insititius</i>	grafted
		<i>insularis</i>	insular
		<i>intactus</i>	intact, untouched
		<i>integer</i>	entire
		<i>integerrimus</i>	quite entire
		<i>integrifolius</i>	entire-leaved
		<i>interjectus</i>	interjected, put between
		<i>intermedius</i>	intermediate
		<i>interruptus</i>	interrupted

<i>intertextus</i>	interwoven, intertwined
<i>intortus</i>	twisted
<i>intricatus</i>	intricate, entangled
<i>introrsus</i>	introrse, turned inward
<i>intumescens</i>	swollen, puffed up
<i>Inula</i>	ancient Latin name
<i>invictum</i>	unconquered
<i>inversus</i>	inverse, turned over
<i>invisus</i>	unseen, overlooked
<i>involucratus</i>	with an involucre
<i>involutus</i>	rolled inward
<i>Iochroma</i>	Greek, violet-colored
<i>iodes</i>	violet-colored
<i>ionandrus</i>	violet-anthered
<i>ionanthus</i>	violet-flowered
<i>Ionopsidium</i>	Greek, violet-like
<i>ionopterus</i>	violet-winged
<i>Ipomoea</i>	from ips, bindweed and homoios, like
<i>Iresine</i>	Greek, eiros, wool
<i>iridescent</i>	iridescent
<i>iridiflorus</i>	iris-flowered
<i>Iris</i>	rainbow
<i>irregularis</i>	irregular
<i>irriguus</i>	watered
<i>irroratum</i>	covered with dew
<i>isandrus</i>	with equal stamens
<i>Isatis</i>	ancient Greek name
<i>Isoloma</i>	equal border
<i>isopetalus</i>	equal petaled
<i>isophyllus</i>	equal leaved
<i>Isotoma</i>	Gk. equally cut and divided
<i>istrius</i>	of Isturia (Southern Europe)
<i>italicus</i>	Italian
<i>Itea</i>	Gr. name of willow
<i>iteophyllum</i>	willow-leaved
<i>Ixia</i>	Gr. word for bird-lime, referring to sap
<i>ixioides</i>	Ixia-like
<i>Ixiolirion</i>	Gr. Ixia-like lily
<i>ixocarpus</i>	sticky or glutinous-fruited
<i>Ixora</i>	a Malabar idol

/ / /

A new Botanical Garden is soon to be established in Denver, Colorado.

Recently formed, the Botanical Gardens Foundation of Denver, Inc., announces that a master plan for the Garden has been prepared and approved. The Foundation, acting as an agency of the city, will cooperate with the manager of improvements and parks in the creation and sponsorship of the Garden.

The city already owns and maintains the site selected, in the easterly portion of an existing city park, which will be rearranged, preserving such plantings as will fit in with the master plan, and augmenting plantings of trees, shrubs and flowers hardy to the climate. They plan to present, each month of the year, plant groups of seasonal interest, with especial displays of mass color to attract both citizens and visitors.

The Arboretum in Winter

(Continued from Page 2)

fall in the Siskiyou Mountains in Southern Oregon, while Mr. Buzard brought back seeds of six other plants from California. Several valuable consignments have again come from various regular correspondents in Great Britain, including the Royal Horticultural Society, from the Montreal Botanical Garden, Morton Arboretum near Chicago, and the American Rock Garden Society. We are fortunate in our sources of such potentially useful and valuable material.

(c) *Books*. Comparatively few additions in this quarter; these have included "Icones Plantarum Formosanarum," fasc. 1, by B. Hayata (1911); G. E. Post's "Flora of Syria and Palestine" (about 1885); "Plant Hunting on the Edge of the World" (1930), and "A Plant Hunter in Tibet" (1934), by F. Kingdon-Ward; "American Camellia Yearbook" (1952), the "Rhododendron Year Book" and "Lily Year Book" for 1953 of the Royal Horticultural Society, London, and their recent publication, "The Journeys and Plant Introductions of George Forrest."

Gifts and Exchanges

We have been able to supply the Morris Arboretum with plants of the Chinese *Ilex Fargesii*, cuttings of three other hollies and scions of two cherries; the Morton Arboretum with scions of eight roses and of *Cornus Kousa* var. *chinensis*; the Saratoga Horticultural Foundation (California) with fruits of *Davidia*; the Parks Department of the city of Seattle with a few surplus red maples, giant Sequoia and other trees, and to the University campus a number of camellias and rhododendrons; 186 copies of our seed exchange list were sent out to cooperating institutions and individuals in December.

Meetings, Lectures and Radio Talks

During November two talks were given by the Director to garden clubs and two by Mr. R. J. Hansen, Assistant Director, to women's clubs on Arboretum topics, all illustrated by Kodachrome slides. In December one, by Mr. Hansen; in January, two. In addition, the Director addressed members of the Board of

Directors of the Arboretum Foundation at their annual dinner meeting on January 15, and gave a talk to graduate students of the University's College of Pharmacy on the development of some of the older European botanic gardens, February 5.

Radio talks have been continued weekly, from the University's FM station KUOW on Monday evenings, 6:30 p. m., and from KVI on Wednesdays at 8:45 p. m. Some of the topics have been: books on trees; winter flowering shrubs; dwarf conifers; planting a new garden, and current work in the garden.

Staff

Our recorder and labeler, Mr. A. Howe, resigned November 30 after 7½ years' work here and was replaced by Mr. J. Witt, a graduate student of the University (College of Pharmacy), who is now engaged in making new zinc labels on the Addressograph embossing machine for most of our important plant collections. As usual during the winter months seasonal illnesses have caused the absence of various members of the staff for periods of generally not more than seven days, although in a few more serious instances it has necessitated longer delay for treatment or recuperation. With our small staff even the loss of one man for a few days is very noticeable and keenly felt; despite the efforts made by everyone it is not possible to achieve as much improvement and development work during the winter months as was possible with a larger staff three or more years ago.

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Book Reviews

(Continued from Page 25)

combination. Half nodding, the delicately curved peal of bells swung clear of the leafy stem on inch-long pedicels."

Kingdon-Ward's enthusiasm is contagious and his description of the book as "a plain tale of plant hunting, nothing more," is a typically British understatement.

MRS. CASPAR CLARKE

The Rhododendron Yearbook, 1953, published by the Royal Horticultural Society, London, S.W. 1, England. Price, \$2.40, including postage.

There are a number of fine articles in the 1953 *Rhododendron Yearbook*, but to me, and perhaps to many others, the most interesting of all is the publication of the notes of the late Lionel N. de Rothschild on rhododendrons, both species and hybrids.

The vast number of hybrids that he raised (1,210), together with practically every species of which it was possible to obtain seeds, gave him the experience which few other cultivators of the genus can hope to attain.

His notes will be continued in the *Yearbook* for 1954, to which we can look forward.

Dr. John M. Cowan gives a very complete account of the history, acquisition and behavior of rhododendrons in the Royal Botanic Garden, Edinburgh, together with sketches of many persons connected with the Garden.

There are several other notes of interesting gardens, an account of the *Rhododendron Show*, and a list of newly registered hybrids.

Short accounts of various phases of rhododendron culture by some American growers help to round out the book, of which "The Raising of Hybrid Rhododendrons from Stem Cuttings," by James S. Wells, is perhaps the most interesting.

There are a number of beautiful photographs which make one wish to see the plants pictured.

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Flowering Cherries

(Continued from Page 12)

Japanese cherries were not injured in the Philadelphia area by the cold winters of 1933, 1934 and 1935, although in exposed situations many of the flower buds were killed during those years. At the present time the suburbs of Philadelphia are famous for the Japanese cherries, nearly all of them originally tracing back to the Wohlerter nursery in Narberth, where he had been shrewd enough to plant the original trees right along the highway, thus attracting great attention from the passersby.

It is only in the late doubles that there are many different varieties. They may be best classified, first, by type of growth. There is one fastigate variety which can be recognized at a glance in any collection. Its flower is semi-double, white to pale pink, and not particularly conspicuous compared to the others, but its upright form makes it important, particularly in a small garden. The generally accepted name of this variety is Amano-gawa, which means "Milky Way." It is one of the few varieties that fruits freely, but there is no report that American nurserymen have grown seedlings from it. Then there are one or two weeping varieties in this group. The best known is Kiku-Shidare, which means "Weeping Chrysanthemum." It has many synonyms, such as Cheal's Weeping, Clark's Weeping, Wohlerter's Weeping, etc. To me it is a most unattractive plant, and I would not want it in my collection, but tastes differ in regard to weeping plants of any group.

The upright, spreading varieties may best

be classified as single or double, and by color. In the single whites there is Tai-haku, which was named in England by Mr. Ingram, who considered it the finest white. It is said not to be known in Japan. At Swarthmore we prefer Taki-nioi, which, in addition to its beauty, has a slight fragrance, something apparently not present in most of the other varieties, although different persons have made different statements about this quality. Jo-nioi and Shiratama are two others in this group, while Ojochin has been a strong and satisfactory grower at Swarthmore. It opens pink and fades. Russell lists at least fifty more, as either synonyms or nearly identical with the above.

The best known semi-double white is Shiro-tae (Sirotae) which has many synonyms, including Mt. Fuji and Fujizan. It is said to be the only more or less double pure white cultivated to any great extent outside Japan. It is rather early blooming for this section.

In single pinks, probably the best variety is Mikuruma-Gaeshi, a name which translated means "The Royal Carriage Returns," being based on a legend that an emperor of the past drove out to see the flowers, then started home and that this particular variety was so unusual in its beauty that he had to direct the coachman to drive back so that he might see it again.

Of the double and deeper pinks, the two best known are Fugenzo and Kwanzan (or Kanzan) and they are, unfortunately, often confused in nurseries, as they are quite alike in some characters, though not in habit, at any

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rate while young. Both have attractive bronzy foliage at first. Among his plants in this color group Mr. Wohlert raised seedlings or selected sports which he named for members of his family—Mrs. A. E. Wohlert for his wife, Jeanne Wohlert and Ruth Wohlert for his daughters, and Paul Wohlert for his son. He also named one for his neighbor, Judge Curtis Bok. All are deep rose pink and rather more dwarf than the Japanese types. Shogetsu, which means “moon hanging low by a pine tree,” is a rather different type of tree in form, more bushy and less upright, while the flowers are the palest pink, pendent on long stalks. Shiro-fugen, which is said not to be known in Japan, is about the latest to bloom, vigorous and of spreading habit, with coppery red young foliage, as in Fugenzo and Kwanzan.

The varieties with greenish-yellow flowers have attracted undue attention because they are queer. No one would want many of them in a garden, but one is a matter of interest. The variety I would choose would be Ukon. Gioiko is similar, and perhaps a little smaller.

The predominance of interest in this group of cherries is shown by the great number of named varieties. There is no such variation in Yoshino, although Walter Clarke, the San Jose nurseryman, has picked out a pinker form which he has called Akebono, the Japanese for Dawn. In the Spring Cherry or Higan group (forms of *Prunus subhirtella*) the varieties do not greatly differ, the colors ranging from a very pale to a rosy pink; the most important one in that group (in addition to the wild type) is Jugatsu, which blooms again in the

autumn or winter. I prefer the upright and low grafted trees to the high grafted weeping ones, but that again is a matter of taste.

Certain other cherries, however, should be mentioned in the early group. The Fuji, or Mame Cherry (*Prunus incisa*) seems to be but little known. In late March or early April, in the Philadelphia region, this is covered by a haze of tiny white flowers, and is most attractive, sometimes coming even earlier than *subhirtella*. There is also a new hybrid of involved parentage raised by Dr. Karl Sax of the Arnold Arboretum, to which he gave the maiden name of his wife, Hally Jolivette. This originated about 1940 and was introduced about 1948 and therefore has not had time to be judged, but from the parentage, which involves both Yoshino and *subhirtella*, it should be an interesting plant. So should also the hybrid *Juddii*, named for the late William H. Judd, propagator of the Arnold Arboretum, where it appeared in 1914 as a seedling from one of the original trees of *P. Sargentii*, introduced from Japan in 1890.

It seems strange that when so many of these fine plants have been grown in this country for nearly fifty years, some enterprising American nursery has not grown seedlings by the thousand, and named a totally new set with American names. That undoubtedly will be done in the future, for there is no reason that we should not develop here varieties more suited to our conditions than those imported from abroad. We should also learn much more about their hardiness than we now know. The mere story that they will grow where peaches

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grow does not, in my opinion, give us a great deal of information, for I have, from time to time, seen peaches flourishing quite outside the limits of what the books describe as peach areas.

As I have noted, not only the earlier importations of the last century, but the Wilson collection at the Arnold Arboretum, the Rochester Parks collection and the U. S. Department of Agriculture collections, have all been practically wiped out. The finest collection I now know is at the Brooklyn Botanic Garden. We are very proud of our Swarthmore collection and there are many other fine trees in the gardens of the Philadelphia area. I have seen occasional good plants around Chicago, where they are not supposed to be worth the effort because so many plants have been lost, and undoubtedly information will be available in due course from many other sections of this country. There is, of course, no doubt concerning their value on the Pacific Coast, where they flourish from California north to Puget Sound, and into southern British Columbia.

Their southern limits are also not clearly defined. It would seem that in the future one set of American-raised seedlings and hybrids could be developed for southern conditions and another set for colder situations. Such horticultural work needs to be undertaken, not in one place, but in many, and because of the time element involved in breeding trees, organizations rather than individuals would seem to be the logical answer. Yet, the record of American backyard gardeners in raising

irises and peonies has been so amazing that it is to be hoped that some of these will try their hand with cherries. The technique of crossing is no more difficult and the raising of hundreds of seedlings to a size of several feet would take little time and little room. After that, of course, more than a backyard would be required. It is my hope that persons who can be encouraged to make such crosses and raise hundreds or thousands of small seedlings, could get them grown for them by some nearby nurseryman or botanical garden to a size where flowers could be observed. The small number that could be expected to be of any value could then be selected and returned to the small garden and a second generation of seedlings produced, when the method could be repeated. I hope breeding of this type may be undertaken in the future by the kind of persons who have done so much in the iris, peony, gladiolus and dahlia fields, and who should be looking for more worlds to conquer.

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Flowering Cherries in England

(Continued from Page 10)

for autumn color they are every bit as good as *P. Sargentii* itself.

Having blossom of a distinctly deeper tone of pink, a hybrid I have raised by crossing *Prunus kurilensis* with *P. Sargentii*, called Kursar, is perhaps still more effective when in flower. Nevertheless, in public favor this seedling must yield pride of place to another offspring of *Prunus incisa*—the child of an alliance with the carmine-flowered *Prunus campanulata*. Okamé, as I have named this small cherry, seems to have inherited most of the best qualities of both its parents—hardiness, a lavish floriferousness and an attractive habit of growth from its sturdy mountain mother, and not a little of the richness of flower color from its sub-tropical, Formosan father. Being easily propagated from cuttings and of excellent constitution, Okamé is becoming increasingly popular with English gardeners, and deservedly so, for when in bloom it almost seems as if a rosy tinted cloud had descended upon its boughs and become inextricably tangled amidst its many twiggy branches.

Another descendant of the little Fuji Cherry which has received unstinted praise from all who have seen it in bloom is Umineko. The chief beauty of this hybrid—a cross with *P. speciosa*—lies in the perfect form of its snow-white flowers and the amazing prodigality with which they are produced every spring. The last three seedlings have all been justly honored by the Royal Horticultural Society with Awards of Merit.

So far as I know, none of these hybrids has as yet reached America. This is to be greatly regretted for they are all highly ornamental and valuable additions to a very lovely and popular family of trees.



EDITOR'S NOTE: Mr. Ingram will probably be happy to learn that through his own kindness in presenting a plant of Okamé to Mr. H. T. Skinner, then of the Morris Arboretum, Philadelphia, who visited Benenden in 1946, this cherry is now successfully established in our country. The University of Washington Arboretum obtained scions, which were successfully propagated, from the Morris Arboretum in January, 1950.

Pacific Madrone

(Continued from Page 7)

gardener, botanist, ecologist, and forester. Among these are the rhododendrons and azaleas, the huckleberries, manzanitas, heathers and many other plants which invariably prefer acid soils.

Twelve species are included within the genus *Arbutus*. These are scattered about the forests of the Mediterranean basin and western North America. Three are native to the United States. These are *Arbutus arizonica*, found in southern Arizona, New Mexico and northern Mexico; *Arbutus texana*, which grows in southwestern Texas, southeastern New Mexico and northern Mexico; and our own *Arbutus Menziesii* growing along the Pacific Coast in southwestern British Columbia, western Washington and Oregon, and California. In the latter state, it is found in the coast ranges as far south as southern California and in the Sierra Nevada region to a point in the vicinity of the Tuolumne River.

The madrona grows on a wide variety of soils, but on poor locations is generally shrubby and of small stature. However, on fertile, well-drained soils it reaches its best development, particularly if such locations are near salt water and subject to periodic heavy, penetrating fogs. This probably accounts for the fact that the madrona attains its best development in the Puget Sound basin where it not unusually reaches a height of from 80 to 125 feet and a diameter of from two to four feet.

HARDY ENGLISH FERNS

Wide Selection

WRITE FOR PRICE LIST

Carl Starker Gardens

Jennings Lodge, Oregon

Diseases of Coniferous Trees

(Continued from Page 5)

to three gallons of water) or basic copper sulphate (2 ounces to three gallons of water). Homemade Bordeaux Mixture (4 ounces of copper sulphate and four ounces of lime in three gallons of water) can be used, but a residue remains on the foliage. A single application of any of these ordinarily gives very good control, although frequent rains may necessitate additional applications.

Winter Injury

Probably winter injury (also called winter killing and winter drying) causes more concern to the home owner than any of the parasitic diseases. Most conifers differ from deciduous trees in that they retain their needles during the winter. Consequently water loss from the foliage by transpiration may occur throughout the winter, the rate being determined primarily by the temperature and humidity of the air. In the winter and early spring dry winds or "chinooks" may remove moisture from the foliage very rapidly. At

this time of year the soil is either frozen or very cold and the roots are not able to absorb enough water to replace that lost from the foliage. The end result is exactly the same as that of drought during the summer months, the foliage dries out and dies. Winter injury causes some damage in the Pacific Northwest almost every year and frequently is very severe.

White pine, lodgepole pine, western yellow pine, Douglas fir, and blue spruce are frequently injured. However, almost any evergreen used for ornamental purposes is subject to winter injury. Winter injury results in a gradual browning and ultimate death of the tips of the foliage. The symptoms develop slowly and the full extent of the injury usually is not apparent for several weeks or even months. The injury is most noticeable on the sides of trees exposed to the sun and warm winds. In cases of severe injury all the leaves and buds are killed and the trees die. More often the buds, because of their additional protection, escape injury and produce new foliage during the next growing season. There-

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fore, it is impossible to determine the extent of the damage until the new season's growth has started. Only then should pruning be employed to improve the unsightly appearance of the trees.

An understanding of the causes of winter injury suggests various means of preventing it. These include: mulching to prevent freezing of the soil, and shading or wrapping bushes and trees with burlap to reduce the drying effects of winds and bright sunlight. If new plantings are to be made, hardy varieties should be used. Information on suitable varieties can be obtained either from your county agent or your nurseryman. Where possible, plantings in "frost pockets" and exposed locations should be avoided.

✓ ✓ ✓

An interesting article, "Oriental Flowering Cherries in Central California," by Mr. Walter C. Borchers of the W. B. Clarke & Co. Nurseries, San Jose, California, unfortunately arrived after the BULLETIN make-up had been completed. Since it exceeds in length the remaining available space, it must be omitted in this issue and will be published in the Summer BULLETIN.

✓ ✓ ✓

We are not sure if the groundhog saw his shadow on February 2nd but one thing we are certain of is that two persons saw the first humming-bird of the year on that day. It was visiting the planting of the Korean rhododendron, *R. mucronulatum*, which was in full bloom.

✓ ✓ ✓

Flowering Cherries

(Continued from Page 13)

tae) in the double white; Shirofugen, Shogetsu and Daikoku are good double pinks, besides the common Kwanzan, most popular of all the flowering cherries. This variety was once called Hisakura, to the confusion of everybody because Hisakura refers to Choshu-hisakura, a beautiful single pink type with moderately vigorous growth and a characteristic dark bark. There is an excellent specimen of it some distance east of the conservatory in Volunteer Park, Seattle.

Ornamental Cherries in the Seattle Park System

(Continued from Page 20)

ful flowering trees to be found anywhere in the City of Seattle. Despite its age, it is quite thrifty, although it does suffer from vandalism, due to people attempting to break off small branches to carry home.

Golden Gardens Park has quite a large planting of Japanese cherries in the upper picnic area. These include many single flowered ones, as well as Kwanzan. They are planted in informal groupings in the upper picnic lawn area and are very attractive when viewed coming down the upper road into the park from 85th Street. The observer will see these trees from above looking down through the blossoms in the lawn areas and through them to Puget Sound.

Queen Anne Boulevard has quite a large planting of these cherries as boulevard street trees, more especially on the east side of Queen Anne Hill. These are older trees and were probably obtained at about the same time the original plants were placed in Volunteer Park.

As yet, it would be difficult to make any estimate of the probable life span of these trees which have been planted in such profusion in our city parks and on our boulevards. Regarding longevity, however, it is the writer's understanding that in Japan many of these trees are very old. These old and well-known trees are visited at blossom time by thousands of people. It is the writer's hope that they will also prove to be long-lived trees in this locality and will continue to increase in size and quantity of blooms as the succeeding years go by.

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**FLOWERING AND FRUIT
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Sources for Flowering Cherries 1953

THE BULLETIN here presents a list of nurseries and the varieties of flowering cherries they offer. This list was prepared primarily from information sent by the nurseries in response to the Arboretum's request made in the February issue of "Balls and Burlaps," the official publication of the Washington State Nurserymen's Association.

The information is presented in two groups. Under *List A* are the names and addresses of the nurseries, each with a key number preceding it. Under *List B* are the plant names, followed in each case by the key number of each growery who offers the specific flowering cherry for sale.

List A

1. Bonneybrook Nursery, Rt. 2, Bothell, Wash.
2. Buckley Nursery Co., Buckley, Wash.
3. Ferrill's Nursery, 1315 Chemawa Road, Salem, Ore.
4. Flowerland Nursery, 8833 31st S.W., Seattle 6, Wash.
5. Furney's Hi-Line Nursery, 21215 Pacific Highway So., Seattle 88, Wash.
6. Hopkins Nursery, Bothell-Kirkland Highway, Bothell, Wash.
7. Layritz Nurseries, Ltd., Victoria, B. C.
8. Leiserland, 2912 Northwest Ave., Bellingham, Wash.
9. Malmo Nurseries, 4700 25th N. E., Seattle, Wash.
10. Prentice Nursery, 9252 East Marginal Way, Seattle, Wash.
11. Rich & Sons, Rt. 4, Hillsboro, Ore.
12. Richmond Nurseries, Richmond Beach, Wash.
13. Strander Evergreen Nurseries, 13310 Interurban Ave. So., Seattle 88, Wash.
14. Taylor Nurseries, 4647 Union Bay Place, Seattle 5, Wash.
15. Wells Nursery, Mount Vernon, Wash.

List B

Flowering Cherries

- Padus (European Bird Cherry), 13
 Sargentii (Sargent Cherry), 11
 sieboldii (syn. Naden, Takasago Cherry), 4, 8, 9, 10, 11, 12, 14
 subhirtella (Higan Cherry), 5, 6, 7, 14
 — autumnalis (Autumn Higan Cherry), 1, 2, 4, 6, 7, 8, 10, 11, 13, 14
 — pendula (Single Weeping Cherry), 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 14, 15
 — pendula plena rosea (Double Weeping Higan Cherry), 2, 3, 5, 6, 8, 9, 10, 15
 — rosea (Whitcombii), 2, 5, 6, 9, 10, 12, 13, 14
 yedoensis (Yoshino Cherry), 2, 6, 8, 10, 11, 14
 — Akebono (syn. Daybreak), 1, 6, 14
 serrulata varieties:
 Amanogawa, 1, 3, 4, 6, 7, 9, 10, 11, 12, 13, 14
 Fugenzo (syn. James H. Veitch, Kofugen), 7, 11
 Hi-sakura, 11
 Horinji, 11

- Ingram, 11
 Kiku-Shidare (syn. Cheal's Weeping), 1, 2, 4, 6, 7, 8, 12, 14, 15
 Kwanzan, 1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15
 Mina-Kami, 11
 Miyako, 7, 9
 Ochichima, 11
 Ojochin, 11
 Paul Wohlert, 11
 Shiro-fugen (syn. Oku-miyako?), 1, 5, 6, 8, 10, 11, 12, 13, 14
 Shirotae (syn. Mt. Fuji), 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15
 Shogetsu, 4, 11, 14
 Ukon, 7

1 1 1

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—Extracted from an article by George M. Reed in "Plants and Gardens," Brooklyn Botanic Garden Records, Vol. 6, No. 1, Spring, 1950.

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